

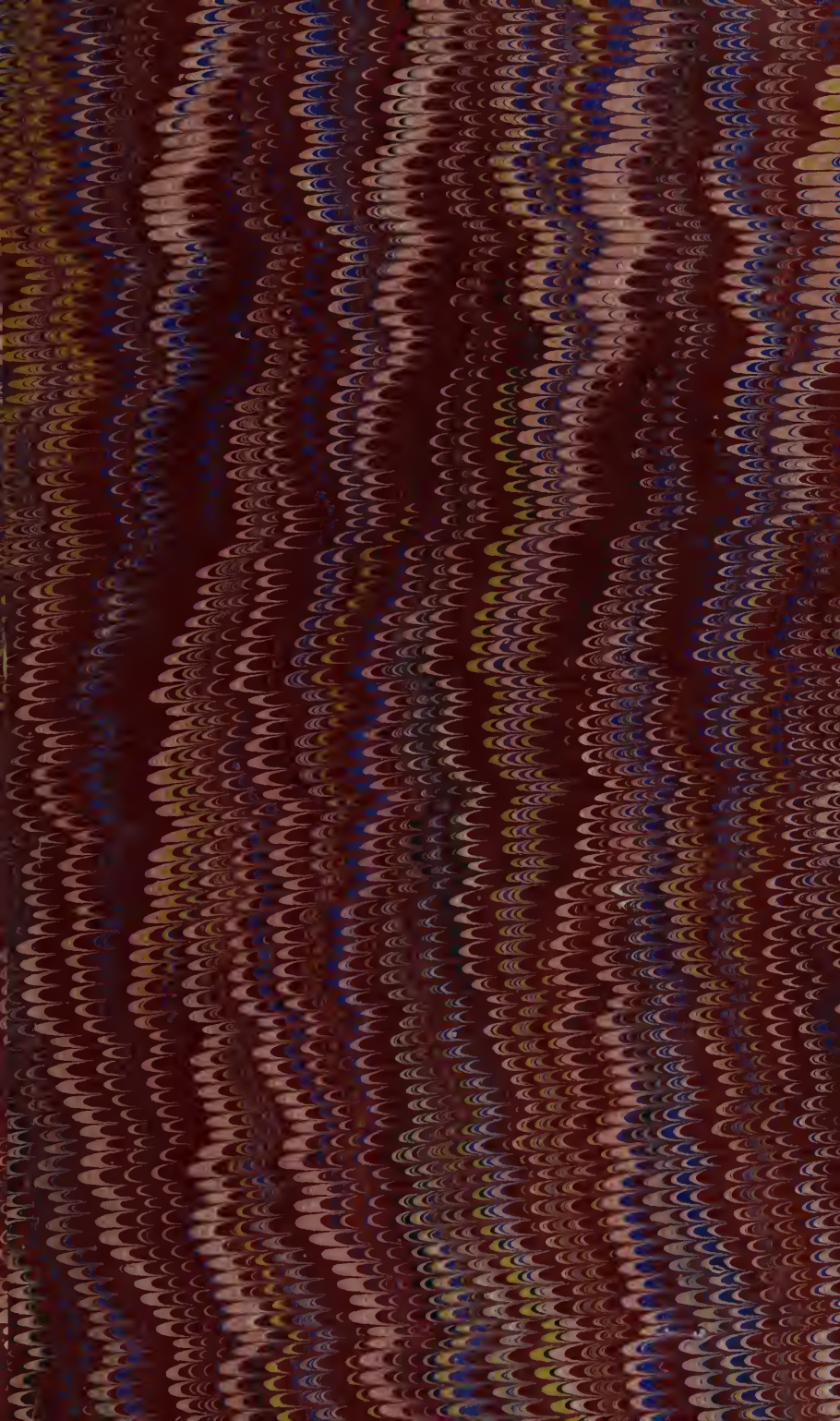
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PRACTICAL TREATISE

ON

LARYNGEAL PHTHISIS,

CHRONIC LARYNGITIS,

AND

DISEASES OF THE VOICE,

^{Ymard}
BY A. TROUSSEAU,

PROFESSOR OF THE FACULTY OF MEDICINE OF PARIS, HOSPITAL PHYSICIAN, MEMBER OF THE
LEGION OF HONOUR, &c. &c.

AND

H. BELLOC, M. D.

Prize Essay of the Royal Academy.

TRANSLATED

BY J. A. WARDER, M. D.

OF CINCINNATI.

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PHILADELPHIA:

PUBLISHED BY A. WALDIE, NO. 46 CARPENTER STREET.

1839.

TRANSLATOR'S PREFACE.

IN presenting this translation, the chief motive has been to furnish the profession with a treatise respecting a very important class of diseases, which demand the serious attention of American practitioners.

The present volume, though not free from defects, is very comprehensive, and affords a valuable fund of useful information, instead of the isolated facts and remarks which have hitherto been scattered through our libraries; and besides, the work embraces some new ideas and modes of treatment, which must prove valuable to the profession, who will have cause to feel grateful to Messrs. Trousseau and Belloc for their exertions, and the results of their experience.

The translator has been unwilling to clog the pages of this work by the introduction of any extraneous or original matter, in the way of discussion upon mooted points, or strictures upon any passages that were not precisely accordant with his own views; but he must be allowed here to add his testimony in favour of the author's plan of topical treatment, which has fully answered his most sanguine expectations, and he has merely inserted through the body of the work a few explanatory notes, with formulæ, that may not be familiar to the American reader.

These pages are submitted to the generosity of the public, who are requested to overlook any gallicisms and deficiencies that may have crept in, while they must acknowledge the merits of this work, which has been every where admired and well received.

Cincinnati, September 2, 1839.

TO
PETER BRETONNEAU.

A. TROUSSEAU.

TO
M. PARADIS,
OF AUXERRE,

IN TESTIMONY OF ESTEEM AND FRIENDSHIP.

H. BELLOC.

THE AUTHOR'S PREFACE.

HAVING commenced a work upon Diseases of the Larynx, when the Academy proposed their prize, our only task has been to arrange our materials to suit their programme.

In crowning our memoir, the Academy have imposed upon us the obligation of rendering ourselves more deserving of their vote. Therefore, this work, though like the memoir in form and arrangement, differs from it in extent, and in the choice and number of cases.

As this is the first that has been published *ex professo*, the reader must expect to find numerous imperfections.

In the absence of other claims upon the notice of practitioners, we have, at least, that of being the first to prescribe and employ topical medications in chronic diseases of the larynx. This we believe to be an important step gained in the therapeutics of laryngeal phthisis, chronic laryngitis, and diseases of the voice.

Heretofore, the mucous membrane of the larynx, like that of the bronchia, had been addressed by indirect means; excepting some attempts at the use of gaseous applications to the air passages. We have ascertained that this membrane is accessible to topical applications, and should be treated like conjunctivitis, diseases of the pharynx, or of the skin itself.

Our success proves, that if it be not *the best*, this plan is, at least, better than those heretofore employed.

To have provided a curative plan, is to deserve well of science; and we are happy to think that some patients owe us their lives and health.

Paris, May 15th, 1837.

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A

TREATISE

ON

LARYNGEAL PHTHISIS.

CHAPTER I.

DEFINITION AND HISTORY.

THE word phthisis signifies consumption. Every chronic disease, attended with hectic fever and emaciation, has heretofore borne the name of *phthisis*.

Thus, a chronic lesion of the kidney, with suppuration, hectic fever, and marasmus, would be a *phthisis*, although there were no tubercle, just as a similar affection of the lungs would be so styled. The same may be said of any other lesion, such as a suppurative white swelling, Pott's disease, ulcerating cancers, &c. &c.

To the generic term *phthisis*, which embraces the assemblage of phenomena, common to all the organic lesions, producing hectic and marasmus, custom requires that we should add the specific name by which we refer the origin of a whole train of symptoms to a local lesion. Thus, the terms pulmonary, dorsal, renal, mesenteric, determine the species of a common genus.

As consumption is oftener produced by pulmonary tubercles than by any other cause, we use the word phthisis to denote their presence, even before marasmus has appeared;—in this case, consumption is only the last degree of *phthisis*.

This perversion is vexatious, and often produces confusion in medical language. We have but one word to express very different ideas, and this word signifies, in turns, the presence of tubercles in the lung; the state of the patient having tubercles; and even, according to some authors, an especial predisposition to their production.

The diction of the Academy proves, that they have not partaken

of the common error, and that they intend to preserve the name of *phthisis* for other diseases than those of the lungs.

The specific epithet that has been added to the generic term *phthisis*, proves an implied distinction; thus, when we speak of *pulmonary phthisis*, we indicate that the lungs were the exclusive seat of the symptoms, and that they remain the focus of the disease.

Thus, the Academy, in employing the words *laryngeal phthisis*, wished to speak of a chronic disease of the larynx, if not exclusively, at least prominently interested in causing the hectic fever and consumption.

In the rigorous and literal acceptance of the word, we must understand by *laryngeal phthisis*, a chronic affection of the larynx, able of itself to produce consumption.

But from proofs that will be developed in this work, the disease of the larynx alone may induce consumption and death, though this is a rare termination; because the anatomical arrangement of the parts is such that the patients die suffocated, before they reach the last stage, or consumption.

But, if a tubercular patient, suffering under hectic fever, should be attacked with a chronic pleurisy, that would cause death more rapidly than the tubercular affection which induced it: he must, nevertheless, be considered as dying from pulmonary phthisis.

For the same reason, if a man, affected with a chronic disease of the larynx, should die from the increased thickening of the mucous membrane, his death would still be attributable to *laryngeal phthisis*.

These reflections show us the necessity of a more extended definition. We adopt the following:—*Any chronic alteration of the larynx which may bring on consumption, or death in any way.*

This definition will appear a sufficient proof, that in applying the title to our work, we have yielded to custom, and should have written upon *chronic diseases of the larynx*, and shown the very rare circumstances under which these affections lead to consumption.

We hope that the medical public will excuse our application of an old term to new researches, by which we have attempted to clear up so obscure a question.

HISTORY.—The ancients have left us little worthy of record; even modern writers appear destitute of one precise idea respecting these alterations.

It is true, we find some accounts of diseases that may have belonged to ulcers of the larynx and trachea; but they are so meagre, as to convey very imperfect notions of the origin, progress, terminations, and treatment of laryngeal phthisis.

Hippocrates does not refer to the affection. What Galen says, only shows how imperfectly he was acquainted with the lesion.¹

¹ Meth. Med. lib. v. cap. 2.

He considered it very easily cured, and reports two cases, without mentioning a single symptom that we now attribute to the organic alteration of the larynx and trachea.

From this reproach of ancient and modern authors, we except the admirable thesis by M. Cayol.¹ No one could better appreciate the value of prior citations, selected without judgment or taste, evincing more patience than enlightened sense and solid reasoning in their authors.

Aetius, so often cited by the moderns, has copied almost exactly from Galen. He adds; *non paucos hoc modo affectos curavimus*.

In all we can glean from the older writers, we find only here and there a few obscure observations on the various alterations of the air passages; but nothing approaching a history of the affection.

Morgagni was the first to give a detailed account of the disease, and he appears never to have witnessed ulceration in the upper part of the air passages: so that what he says does not constitute a history of laryngeal phthisis, but has only served as data for later essays. Indeed, the case he reports in letter 15, art. 13, which we shall publish as No. 32, gives no detail of the symptoms experienced. He merely says: she was asthmatic for a long time, that her voice was feeble, and that her physicians considered her phthisical. (*Jam diù asthmatica, imminutâ insuper voce, à medicis procul dubio ex pulmonibus laborare credebatur*).

The symptomatology of the case reported in the same letter, article 15, is more complete. We are told how the patient breathed, what was the character of the sputa, the aspect of the throat, and the point to which the pain was referred; but, in the reflections that follow, Morgagni has not established the existence of laryngeal phthisis as a special affection, capable of causing death in any other manner than by suffocation.

In his 22d letter, (article 27,) he gives the detailed history of a tracheal phthisis, which he cured, though all the physicians had considered the patient attacked with pulmonary phthisis. He concludes, that many of the reported cures of phthisis might have been merely tracheal.

It is surprising, that the reflections he made upon the latter affection did not lead him to apply them also to ulcers of the larynx, of which he had before spoken, and thence to conclude the possibility of consumption being a consequence of ulcerative action in the upper parts of the air passages.

Borsieri,² seizing the observation of Morgagni, we have just cited, stated positively that the larynx and trachea might become the seat of ulcerations capable of producing hectic and death. He is then the first who spoke of laryngeal phthisis in the true sense of the term. In paragraphs fifty-seven and sixty-two, of his fourth

¹ Recherches sur la phthisie trachéale. Paris, 1810, in 4to.

² Institutiones Medicinæ Practicæ. Berolini, 1826, tom. vi. § 57 & 62.

volume of the Institutes of Practical Medicine, he portrays the disease; see cap. 3, § 55, 57.

*Sunt etiam qui existiment ulcera laryngis atque asperæ arteriæ, quia pulmonibus non insident, à phthisi secludenda esse. Verùm ab his quoque corpus sæpè deperit, et lenta febricula cietur, quâ omnis altrix materies absumitur: plerùmque enim pulmo unâ afficitur, vel brevi eadem labes ad eum propagatur. Quapropter hanc phthisin, nisi pulmonariam, trachealem certè appellandam esse, non ineptè judicaverim.*¹

While we wish to do Borsieri justice, we cannot agree with Joseph Franck, who said he could not avoid smiling, when he read in the Dictionary of Medical Sciences, that Cayol had been the first to give a good monograph upon the subject. Indeed, the work of Cayol is so far superior to the few words of Borsieri, that it deserves a share of the credit given by Franck to Borsieri alone; who seems to have written under the influence of a preconceived theory, rather than from practical observations.

What physician, who had seen laryngeal phthisis, would venture to assert, with the author of the Institutes of Practical Medicine, that there was no oppression, no difficulty of breathing, *even on going up stairs*, that decubitus was easy in every position, and that, if there were fever, it was scarcely perceptible? Who has observed the shrinking of the hands and fingers, (*maximè manuum et digitorum extenuatio*,") and the peculiar fetor of the sputa, (*peculari puris fœtore*,") that Borsieri himself describes, (loc. cit. § 62,) as characters of laryngeal phthisis? No one, that we know, and Franck himself, who, with Borsieri, regards these symptoms as belonging to laryngeal phthisis, avows he has never seen them.

Before the thesis of M. Cayol, Doctors Sauvée² and Laignelet,³ in their theses, had treated of various alterations that might give rise to laryngeal phthisis; and, about this period, M. Double read an interesting memoir before the Medical Society. This admirable pathologist endeavoured to prove, that laryngeal and tracheal phthisis, which had been considered distinct, were one and the same disease, differing only in situation; this opinion, though combated by Cayol, will be supported by us.

M. Papillon⁴ and M. Pravaz⁵ have also chosen this disease as the subject of their theses. The latter deserves great credit for the care with which he has collected interesting cases of cure, several of which we have quoted. Joseph Franck has also given us a complete and somewhat detailed account of this affection.⁶

We have only mentioned those authors who have produced monographs. It would be tedious and useless to give the list of all

¹ The reader is referred to the chapter on *Terminations*, in which we shall discuss the opinion of Borsieri.

² De la Phthisie Laryngée. Paris, 1806.

³ Recherches de la Phthisie Laryngée. Paris, 1806.

⁴ Du Larynx et de la Phthisie Laryngée. Paris, 1812.

⁵ De la Phthisie Laryngée. Paris, 1824.

⁶ Præcos medicæ universæ præcepta. Lipsiæ, 1833.

who have contributed isolated facts, as we shall refer to them in the course of the work.

We must make honourable mention of the precious observations of Louis;¹ of those which Andral has published in his *Clinical Medicine*; and, finally, of those equally valuable remarks of Bouil-land on *œdematous laryngeal angina*.²

CHAPTER II.

ORGANIC ALTERATIONS.

WE must here speak, not only of the lesions that occupy the larynx itself, but of those found in the trachea, in the veil of the palate, and in the pharyngeal mucous membrane; finally, of those which invade the lung. We shall examine these alterations, only with a view to explain some mooted points in the history of laryngeal phthisis.

Anatomical alterations of the larynx will be divided into two great categories; those in which the mucous membrane is interested, and those which affect the cartilages.

A. *Alterations of the mucous membrane*.—Among the signs we are in the habit of regarding as indicating that chronic inflammation existed during life, redness, so often insisted upon, is truly the most uncertain. It is very important to insist upon this point, because numerous mistakes have been, and still are committed, through neglect of the pathological fact, that redness, how bright soever it have been during life, may completely disappear after death.

A few examples will render this apparent; first, as regards acute disorders. In erysipelas, in phlegmons, in confluent small-pox at the period of inflammation in the pustules, in chemosis, in high grades of fever when the tongue is often intensely red, do we not see, after death, pallor supplying the place of the bright tint, which had been the expression of intense inflammation during life? This fact is so clear and palpable, that all anatomists have observed it; though all have not noticed the inductions applicable to tissues that are invisible during life.

Will not the same laws that govern the capillary circulation of the skin, the conjunctiva, and the mucous membrane of the mouth, equally apply to the organs enclosed within the splanchnic cavities?

The same remarks may be made of chronic phlegmasiæ. The blood is seldom intimately combined with the tissues; it still cir-

¹ *Recherches Anatomico-pathologiques sur la phthisie*. Paris, 1825.

² *Dict. de Méd. et de Chirurg. pratiques*. Art. Œdema.

culates in its own vessels, and when life is extinct, the parts that were inflamed grow pale, as may be seen in chronic ophthalmia, ulcers of the skin, and severe cutaneous diseases. In some rare cases, however, the redness does not entirely disappear when the cruror has been combined with the tissues.

That sure guide in medicine, analogy, enables us to decide with great certainty in diseases of the larynx. If, when we depress the tongue and examine the pharynx, the tonsils, and veil of the palate, and perchance see the epiglottis, they are all deeply reddened; and still after death, find them bloodless and pale, may we not fairly assume that the same change had taken place in the larynx, and in the aryteno-epiglottidean ligaments?

We have purposely entered into all these details, which appear so useless. Here turns the grand question of œdema of the glottis, which shall be noticed pathologically, though we will first examine its anatomical relations.

Bayle, Laënnec, Cayol, Dupuytren, &c. &c. have decided for the existence of œdema, and rejected the idea of acute or chronic inflammation, from the circumstance of their seeing the aryteno-epiglottidean ligaments and the *cordæ vocales* pale and tumified. But from evidence we shall give, swelling, even without redness of the lips of the glottis, or laryngeal mucous membrane, is almost a certain sign of inflammation.

But if redness may disappear after death, intumescence may be subject to the same law.

Do we not observe phlegmons shrinking and the tumefaction of erysipelas disappearing after death; and, among chronic diseases, is it not common, in our hospitals, to see the tumefaction of the cellular tissue, induced by a disease of the bones, considerably diminished after death?

The fluids ever remain subject to physical laws and powers, and when these forces gain undivided sway, after the last sigh of the patient the blood that was in the vessels immediately flows by the anastomoses into the veins, and the fluids that had been effused into the cellular tissue gradually reach the most dependent situations.

The palpable neglect of these principles of pathological anatomy has given rise to serious errors, and has caused ingenious theories of the diseases of the larynx founded upon misinterpretation of facts.

Thus, when a child, affected with acute laryngitis, dies, after some hours of frightful suffering, as spasmodic action and remissions had been observed, and as, at the autopsy, no false membrane, abnormal redness, nor swelling sufficient to produce suffocation, are observed, it has been agreed that the case was spasmodic croup, a disease that may exist, though it would probably cease to be, were the foregoing remarks applied to anatomical lesions.

In the same way, when, in the course of a laryngeal phthisis, suffocation has closed the scene, as the swelling and redness may

not always suffice to explain this sad termination, they have brought in asthma or other nervous accidents, whereas the want of accordance between the pathological appearances and the symptoms belongs exclusively to the new circumstances in which the body was placed after death.

But this is not the only nor the greatest error to which a neglect of facts has given rise; œdema of the mucous membrane of the larynx, a disease which we will not call imaginary, though extremely rare, has been made to assume an important place in the list of nosology. It sufficed to find the vocal cords, and aryteno-epiglottic ligaments tumified and pale, with absence of inflammatory appearances, to make a new specific disease—*œdema of the glottis*.

We do not contend that there is no such disease, but believe we have seen an undoubted case of it.¹ We merely wish to attract attention to this fact, that tumefaction of the mucous membrane of the larynx is without redness almost always a sign of inflammation.

We intend to devote a chapter to the discussion of this controverted point of pathology, and we hope to show that what has been styled *œdema of the glottis*, is in most cases an inflammatory tumefaction, as M. Bouillaud has already stated.

But if redness and tumefaction do yield and sometimes disappear, when present they will possess an enhanced value. We have once seen the superior portion of the larynx of a livid red colour, and so swollen as to resemble the neck of the uterus. The dotted redness, so common on the inflamed mucous membrane of the trachea, is rarely seen on the epiglottis or larynx, which is owing to a lower degree of vascularity of this part, the mucous membrane being here dense and pale, and this is probably one of the causes of the pallor observed in a larynx that has been evidently inflamed.

We shall divide our subject into the consideration of *erosions* and *true ulcerations*.

Erosions.—These occupy the mucous lining, while ulcerations have their seat in the submucous cellular tissue, and sometimes even on a necrosed or carious cartilage. These erosions, so admirably described by M. Louis in his treatise on phthisis, often escape the notice of an inattentive observer; as the mucous coat seems only a little depressed, and so gradually that, as the edges are not red nor prominent, it is sometimes impossible to define the line of demarcation.

The character of this affection may be most readily perceived by submerging the part in water; when little villousities will be seen floating from the eroded surfaces, like the villi seen on a dog's stomach, but which are never seen in the air passages except where the epithelium has been destroyed.

It would seem that these erosions were but the first degree of

¹ This case will be reported under the head of the relations of œdematous laryngeal angina with laryngeal phthisis.

ulceration, and that the latter should be numerous, in proportion to the number of erosions; and reciprocally, that we should never find ulcerations without a coincidence of erosions. But this is not the case; indeed we have seen that part of the larynx, corresponding to the thyroid cartilage, converted into a vast ulcer, or rather a number of them, while the mucous membrane of the part offered no sign of erosion, although in the trachea and larynx it was covered with numerous erosions, without any deep ulcers. We say that we have never found erosions except in patients attacked with pulmonary phthisis, which observation would seem to justify the opinion of M. Louis, that these erosions are owing to the contact of pus, which is constantly passing over the mucous membrane of the larynx and bronchia. Admitting the fact, it remains to be explained why the trachea is oftener attacked than either the larynx or bronchia.

This fact might at first sight astonish us, for the principal bronchium of each lung would seem to be the part most frequently in contact with the pus; but it must be observed that the bronchia generally divide the burden, while the trachea has to bear it all.

If we further consider, what has not escaped M. Louis, that the posterior part of the trachea is most frequently attacked, this would be another reason for believing that the contact of pus is the most frequent cause of this lesion of the mucous membrane.

How plausible soever this hypothesis may at first sight appear, we must confess that analogy overthrows it entirely. We see, in the tuberculous, many and large ulcerations of the small intestine, which certainly have another cause than contact of pus. If, then, the tuberculous diathesis have invaded the crypts of the ileon where inflammation and ulceration could not have been induced by the flow of pus, must we not admit that it may be the same with the trachea and larynx, which, forming a part of the respiratory apparatus, would, by this intimate connection with the lungs, be still more disposed to be invaded by the tubercular affection?

There is moreover a remarkable difference between the form of the ulcerations of the intestine and the erosions of the trachea and larynx, found in phthisical patients. In the former, there are little hard, semi-cartilaginous masses which are often taken for tubercles, though without sufficient proof, whereas in the trachea and larynx the ulcerations never appear tubercular.

Whatever value may attach to these explanations of the origin of the erosions, which are coincident with tubercular pulmonary phthisis, we frankly confess that data are yet wanting to decide the question, and shall rest satisfied with mentioning the fact, which is worth more than any explanations.

Ulcerations.—Ulcerations sometimes invade the whole larynx, vocal cords, aryteno-epiglottidean ligaments and the mucous membrane which envelopes the epiglottis. When more deeply seated they attack the cartilages themselves, which become necrosed or carious.

In most cases they commence in the mucous membranes; in others, sub-mucous abscesses are found, and ulcerations result, like fistulous sores of the skin.

Finally, instead of communicating with an abscess, the ulcer may be in contact with a necrosed cartilaginous surface. We shall presently state how we conceive, that ulceration of the mucous membrane may bring on necrosis of the subjacent cartilage.

B. Alterations of the cartilages of the larynx.—Under this head we shall study the changes produced by laryngeal phthisis, in the thyroid, the cricoid, the arytenoids, and the epiglottis, although the latter fibro-cartilage rather appertains to the tongue than to the larynx. Still, as it most frequently partakes of the lesions of the latter organ, it should not be separated because of its anatomical relations, for we shall see it is necessarily included in a pathological history of the larynx.

Ossifications.—The ossification of these cartilages is purely a physiological phenomenon in the ordinary circumstances of life. In the progress of advancing years they become incrustated with earthy particles, and in old age they are commonly ossified. But in laryngeal phthisis of two years standing, ossification is developed, although the youth of the patient would seem to exclude such an organic modification.

Let us look to analogous cases for an explanation of this, or rather for proof that the phenomenon of ossification is common in conditions analogous to those in which the larynx is found in this disease.

If a bone be broken, inflammation is soon developed not only at the point of the fracture but in all the neighbouring tissues, especially in the periosteum. When the inflammation has existed about twenty days, the periosteum and the cellular tissue of the muscles and aponeuroses are gradually infiltrated with bony matter, and a considerable bony mass soon surrounds the fracture, constituting the celebrated clasp (*virole*) of Duhamel, the means of consolidation furnished by Providence.

The cartilages, being in fact the elementary framework of the bones, are subject to the same laws. Thus, when a costal cartilage is fractured, there is a bony infiltration into the perichondrium, and the cellular tissue of the mediastinum, and that without the pleura, participate in this change.

But these changes are equally observed, not merely when the bones or cartilages themselves are diseased, but, also, when the neighbouring tissues are under the influence of chronic inflammation. Thus, the periosteum becomes incrustated with bony salts along the course of a fistula that follows a bone, or in the neighbourhood of a cold abscess, and the costal cartilages are similarly affected, as every pathological anatomist knows, who has examined a case of cancer in the mammaræ, occurring in early life.

We must then admit, that the inflammatory afflux, which occurs near the periosteum or cartilages, excites in these tissues a patho-

logical action, in virtue of which an osseous secretion is effected—a remarkable phenomenon—inasmuch as inflammation, which has been considered an exaggeration of the vital powers, (we should say a perversion,) brings on the same results as senile weakness of the same powers.

If we now apply these remarks to the cartilages of the larynx, we shall better comprehend why their ossification is so common and premature a phenomenon in laryngeal phthisis. The bony matter is developed in irregular plates, and spread upon the surface of the cartilage, without observing the order maintained in the normal ossifications of the fœtus. At certain points, the whole thickness of the cartilage is converted into bone; at the edges, the ossification is jointed accurately into the cartilage, to which it is always superior, forming a superficial flake. When the ossification occupies the whole thickness of the thyroid and cricoid, the two bony plates advance from without inward, and embrace the remaining cartilaginous matter. When boiled, the bone separates from the cartilage just like an epiphysis.

Sometimes, especially in old subjects, the cartilages are completely transformed into bone.

The cricoid cartilage is most frequently affected, especially upon its posterior surface, next the thyroid. We have never seen the arytenoids ossified, and conclude they are more rarely affected than the others.

Ossification of the perichondrium.—The perichondrium may become ossified. We can as readily conceive this lesion as that of the costal cartilages, for the same laws regulate similar tissues.

Ossification may exist in laryngeal phthisis when there is no ulceration, nor even erosion, and in simple chronic laryngitis;—besides, the ossified part may not communicate with any fistulous track, nor with the bottom of an ulcer; in a word, it may be separated by hypertrophied cellular tissue from the ulcerated surfaces, or submucous walls of the abscess:—a very essential circumstance, when it becomes necessary to diagnosticate between ossification and necrosis, and very important to be established.

Necrosis of the cartilages.—This is a very frequent lesion, which we have found in more than half the subjects we have examined, though it has been scarcely mentioned by authors. This curious anatomical lesion presents itself under different forms.

1st. The necrosed portion is always completely denuded; this must be a permanent pathognomonic character, since dead parts will ever separate from living—but the separation here takes place in a peculiar manner. The necrosed portion is never covered by cellular tissue, but always completely naked, and on it rests the pus there secreted, or, it is the termination of a fistulous track opening into the larynx. We may find a sequestrum, as in the bones, but if the separation take place quickly between the sequestrum and the parts endowed with great vitality, as the cellular tissue or perichondrium, such is not the fact in regard to the rest

of the cartilage, from which it requires a long period to be eliminated.¹

2d. The necrosed portion is always ossified; this is a character which is never absent when laryngeal phthisis has continued for some time. In fevers of a grave type, known under the names of putrid, typhoid, dothinerite, gastro-enterite, &c. &c., we sometimes find in the larynx necrosis without ossification. Sédillot cites an example; (*Bulletin des Séances de l'Académie Royale de Médecine, Dec. 1836.*)

If asked why we conceive ossification always accompanies necrosis, we should say that the ulcerative lesion, mostly if not always the cause of necrosis, commences by determining an inflammation of the perichondrium, and consequently an osseous effusion in the subjacent cartilage, according to the law we have already established. When the ulcerative process arrives at the ossified cartilage, this becomes necrosed with greater facility since ossification has deprived it of a great share of its vitality.

This explanation is the more plausible, because when ulcerative laryngeal phthisis runs its course rapidly, and when it occurs in young subjects, whose cartilages are yet very *active*, we do not observe necrosis, but *caries*.

Another proof is, that the laryngeal cartilages which we have never seen ossified, (the arytenoids,) never become necrosed but always carious, as does the epiglottis. We except the case of grave fevers, where necrosis is governed by a peculiar condition of the economy.

Previous ossification is then a necessary element in necrosis of the cartilages. It will be objected that in submucous abscess the cartilages are almost always ossified and necrosed. But we cannot suppose that these abscesses had commenced by denuding the cartilage which was first necrosed by the contact of pus and afterwards ossified. Indeed, in acute submucous abscess of the larynx, no one that we are aware of has seen necrosis, but merely a denudation—quite another affair—much less has any one beheld ossification in this case; but in chronic submucous abscess they may have seen ossification and necrosis, because the abscesses were consecutive to necrosis itself, that is to say, the sequestra, as foreign bodies, had acted, like other sequestra, in producing abscess, if the pus did not escape by fistulous openings, and then, we ask, how can necrosis precede ossification, how can the bony matter be deposited in a dead part, deprived of all vascular connections? Nevertheless, we do not deny that necrosis of the cartilages may occur in an acute case, and consequently without previous ossification; we have admitted its existence from fevers, it may also happen in diseases of the larynx, after phlegmon in the neck, &c.,

¹ A remarkable case is mentioned by J. Franck, (*Præcos Med.*, vol. vi. p. 199:) "*Æger Hunteri per plures menses sanguinem et pus rejiciebat, ac pro phthisico habitus fuit, convaluit rejecta cartilagine cricoidea.*"

It is difficult to conceive that this cartilage should have been ejected whole, and the escape of such a considerable portion is exceedingly problematical.

and then we may comprehend how the necrosed portion, becoming a foreign body, may give rise to submucous abscess of the larynx, to fistulas, and to a fatal tumescence of the mucous membrane which clothes the chordæ vocales, but we have *never observed it*, nor can we meet with such a case in any writers upon this subject.

The truth of these remarks may be tested by reading cases No. 5, 21, 22, 24 and 25.

Caries of the cartilages.—We have just said that caries was less frequent than necrosis, we will now exhibit the conditions under which it occurs.—We have often observed it in the cartilaginous rings of the trachea, never in the cricoid cartilage; once in the thyroid, three times in the arytenoid, and once in the epiglottis. We have had our attention directed to this point but two years, before which we have, doubtlessly, often passed this lesion unobserved, for we have since seen it very frequently. Franck reports a case of caries, i. c. p. 203. "*Sæpissimè cartilaginem cricoideam carie erosam deteximus; semel tantà hujus cartilaginis erosio erat, ut margines illius ex utrâque parte dehiscentes, in pharyngem erosam præominerent.*"

In caries, the ulcerations commence in the mucous membrane, and increase rapidly, the under submucous cellular tissue, so as to reach in a few months, perhaps weeks, the perichondrium and cartilages. The extreme rapidity of the march of these ulcers is explained by the fact that we have always found caries coinciding with tubercular pulmonary phthisis, a disease which it resembles in its fatal tendency to ulcerative and suppurative action.

Carefully examining the carious parts before dissection, there will be found considerable activity and vitality in the bottom of the ulceration, and the vascular villousities we mentioned when speaking of erosions of the mucous membrane. The dissected cartilage looks eroded or gnawed. This erosion may proceed to the complete destruction of the epiglottis¹ and arytenoid cartilages—even to the perforation of the thyroid itself, as was seen in case 24.

Mr. Andral cites a case in which ulceration had destroyed the parts to the skin, and established a fistulous air passage. This ulceration opened at the upper part of the angle formed by the two plates of the thyroid cartilage.²

All the cases of caries we have observed coincided with tubercular phthisis, which was not the case with necrosis, and this establishes a more marked line between the two alterations.

Lesions which accompany caries, necrosis and ulcerations. The lesions we have just been describing do not occur isolated, and they are almost always accompanied by other alterations even more menacing to life than themselves. In the same larynx caries may be found with necrosis and ulceration—but it is impossible that deep ulcerations should exist in the larynx, and that the cartilages

¹ Louis, Rech. Anat. Pat. sur la Phthisie, p. 251.

² Clinique Médicale, tom. ii. p. 204.

should be carious or necrosed, without the mucous membrane and subjacent cellular tissue being the seat of considerable inflammatory engorgement; cases, 1, 21, 24, 25, and 31, are striking examples.

But this inflammatory engorgement, so improperly called œdema by Bayle, becomes the immediate cause of death by suffocation. We have established by autopsy nine cases of œdema; two were acute, one developed by a very violent catarrh; another, a few hours after tracheotomy, seven were chronic, and of these five were complicated with necroses, caries and ulcerations, two with ulcerating tumours of the larynx. We shall return to this important discussion when treating of the relations between laryngeal phthisis and œdema of the glottis.

We have thought proper to commence this chapter with a general description of the alterations found in the larynx and trachea, and which commonly cause laryngeal phthisis; we have explained how observation taught us to recognise the relations of these alterations, their mode of formation, and their usual order of progression—we have now only to give a rapid sketch of the particular lesions mentioned by authors.

Foreign bodies, whether introduced, or of internal formation, may simulate or engender laryngitis.

Foreign bodies in the larynx.—Lieutaud relates the two following cases:

*"In cadavere cujusdam asthmatici triginta annorum, qui perpetuo querebatur de quodam impedimento in tracheâ quod tussi et screatu expellere sæpius conabatur, et morte subitanâ sublato, reperitur quidam polypus variis radicibus laryngi infixus, et versûs glottidem obturamenti instar adactus; unde suffocatio inexpectata."*¹

*"Secto cadavere cujusdam pueri duodecim annorum jampridem phthisici, et inexpectatâ morte rapti, in propatulum veniebat intrâ laryngem, corpus quoddam polyposum et racemosum e tracheâ superiori parte pediculo unico et peculiari ortum trahens et hinc fluitans; quo fortè ad laryngem repulso, suffocationem obierat æger."*¹

These two cases are highly interesting, and it will be observed that he had underscored the word *asthmatici* in one, and *phthisici* in the other, as though he wished to indicate that the disease had simulated asthma and phthisis during life.

Desault in his long practice met but two cases of polypus, and the clinique of Pelletan does not contain a single example, hence we conclude that these excrescences must be extremely rare. We have seen one case, vid. observation 1. Dr. Senn, of Geneva, has cited one, vid. obs. 2, and a very interesting history of the same organic alteration was published by Dr. Romain Gerardin, vid. obs. 3.

¹ Hist. anatomico-medica, lib. iv. obs. 63 and 64.

OBSERVATION I.

Tubercular tumour and polypus of the larynx, without organic lesion of the lungs.

Mr. De Serry, aged 42, an élève of the Polytechnic school, had always enjoyed good health until 1834. In January his voice began to lose its natural sound, after which it was gradually extinguished until it became wholly aphonic. We commenced treatment about the close of 1834, and were so fortunate as to procure him some relief, which only lasted a few months.

About the first of July, 1835, he again perceived a difficulty of respiration, which, in a few days, increased so as to threaten suffocation. Justly alarmed at his condition, the patient, with his uncle, Mr. Hay, hastened to Paris to place himself again under my care.

On the 11th of July, 1835, when we saw him he enjoyed all his powers; his pulse beat from one hundred and fifteen to one hundred and twenty in a minute. The respiratory movement was performed twenty-eight times in the same period.

Both inspiration and expiration were performed with equal difficulty. The former was remarkable, and difficult to describe, and in its greatest intensity sometimes resembled the bellowing of a calf, sometimes the roaring of a lion.

In the evening the difficulty of respiration was increased; the night was passed in extreme agitation, and on the morning of the 12th, suffocation being imminent, we practised laryngotomy, in the presence of professors Fouquier and Roux, and doctors Hamard and Danyau.

A hemorrhage was the only accident that accompanied the operation, it was soon checked by light compression.

As soon as the canula was introduced, the oppression was relieved; respiration became easy, although somewhat irregular and hurried (40 in a minute.)

For five days after the operation, the patient did as well as could be expected; but at this time (the 16th) he began to complain of a pain in the right side, he had more frequent spells of coughing which were more fatiguing than before.

There was decided dulness on percussion at the base of the right lung, and above the liver. A pound of blood was drawn, cataplasms were applied to the painful part, and sinapisms to the extremities; nothing availed.

On the 17th we saw the patient with Mr. Fouquier, and observing the lips of the wound gaping, and suppuration checked, we prognosticated a fatal result. Indeed, the patient succumbed at five in the evening, (twenty-four hours after the access of the thoracic symptoms.)

Autopsy.—Sixteen hours after death cadaverous rigidity, decidedly jaundiced tint of the skin. An incision was made from the

point of the chin to the base of the sternum, and we first examined the larynx. This organ presented an œdematous tumefaction of all the left aryteno-epiglottidean ligament. This œdema consisted of a swelling which increased in size as it approached the larynx. Its greatest thickness was four lines. It was flabby and hung within the larynx, in such sort, that a forcible inspiration must have engaged it in that organ, so as materially to obstruct respiration. The right ligament maintained its natural appearance. The larynx, stripped of its muscles, did not appear tumefied, indeed the thyroid cartilage was slightly shrunken on the left side. The right lateral crico-arytenoid muscle, and the cellular and ligamentous tissue surrounding it, were of a greenish tint. At this point, so decidedly depressed in a state of health, there was an intumescence which increased on the posterior part.

The artificial opening extended from the inferior border of the thyroid cartilage to the lower edge of the first ring of the trachea. The canula occupied the crico-thyroid space.

On the posterior portion of the larynx when removed from its connections, we observed on the left side the greenish tint before mentioned, it extended nearly to the base of the arytenoid cartilage. The cellular tissue was here affected with œdema continuous with that of the aryteno-epiglottidean ligament.

The larynx was carefully opened on the posterior median line, the two sides of the incision were widely spread, and the following circumstances were remarked: all the left half of the mucous membrane had the greenish hue before mentioned. The inferior vocal cord was very much swollen, the superior one was less so. The left ventricle was bathed in an extremely fetid gray sanies, and occupied by an accidental production of lardaceous consistence and of an ashy white colour. This tumour was prolonged into the space that separates the cricoid from the posterior part of the thyroid, and appeared a little without and behind the larynx. A part of the left half of the thyroid was carious. This same tumour extended out of the ventricle, and then assumed the consistence and tint of a mucous polypus, and reached some distance into the larynx.

The left half of the larynx was from three to five lines thick, while the right side was but two or two and a half, and its mucous membrane, vocal cords, ventricle and cartilage were perfectly healthy. The mucous membrane of the trachea was tumefied and coloured with red spots; the bronchia were red, but without spots or tumefaction. Numerous intimate adhesions united the whole left lung to the costal pleura. The patient had never suffered with disease of the lung. At the summit and posteriorly, there was a little engorgement of the first degree.—No trace of tubercles. In the right pleura there was an effusion of three pounds of turbid, reddish serum; no false membranes; the pleuræ were nowhere adherent, but both were of a livid red colour.

All the inferior lobe of the right lung was of a marked wine lees

red; no crepitation, easily torn, and when cut there flowed a bloody, fetid, but not frothy liquid. On the sharp edge of this lobe there was a tumour whose gray colour contrasted strongly with the violet hue of the lung; when cut, there flowed an extremely fetid grayish sanies. This tumour was evidently a union of lobules attacked with sphacelus. The gases developed by putrefaction gave to this gangrenous portion its excess of volume. The other organs were not examined. The larynx was examined in the presence of MM. Bronssais, Bouillaud, Duméril, Marjolin, Andral, J. Cloquet, and M. Sanson.

OBSERVATION II.¹

Tumour slowly developed in the larynx—Hoarseness for six years—Aphonia—Death by suffocation.

The twenty-second of December, 1826, I was called on by the authorities to make the examination of the body of Mr. Clavel, who had died suddenly in a baker's shop; I learned that the patient had long since lost his voice; that he had been treated for laryngeal phthisis; could not swallow liquids; was unable to take violent exercise, and that for two days he had complained of his throat.

The body being well developed did not announce phthisis. All the viscera were successively examined; there was venous injection, and the fluidity of blood consequent upon asphyxia, and they were all in a normal condition, with the exception of the larynx, which offered the following peculiarities: the epiglottis was healthy; there was slight œdema of the sides of the glottis and of the epiglottic ligaments; the mucous membrane was bloated; the larynx, opened from behind, exhibited *a tumour the size of a filbert, whitish, hard, fibrous, chapped, and pedunculated*, growing from the right ventricle which it filled, and occupying almost the whole of the upper part of the larynx, so that when this organ was closed it was exceedingly difficult to introduce a very small crow quill. This tumour, which appeared syphilitic, was the true cause of death; the slight swelling of the mucous membrane would have been sufficient, in this state of the larynx, to obstruct the passage of air. An inspection of the specimen would scarcely convince one of the existence of such an obstacle; but its progress must have been exceedingly slow, for the voice had been altered five or six years, and thus the system had become reconciled to the obstruction.

OBSERVATION III.²

M. Stassin, chief of the hussars of the chamber of deputies, aged sixty-three years, suddenly lost his voice, two years ago, without

¹ This case was published by M. Senn, of Geneva, in the *Journal des Progrès des Sc. Méd.* 1829, t. v. p. 230.

² Read before the Academy, Sept. 27, 1836, by M. R. Gérardin.

appreciable cause. Leeches were applied to the upper part of the sternum, a blister to the chest, afterwards tartar emetic plasters, simple fumigations, and finally alum gargles were used.—All these attempts were fruitless. He took cold at the beginning of last winter, and during the whole season had cough, with thick sputa. For some months he has had oppression and hissing on inspiration. The patient could not ascend the stairs to his chamber without great pain in respiration, and was even obliged to suspend conversation for want of breath.

Thinking that the air of Normandy would prove advantageous to him, M. Stassin anxiously waited the close of the session, that he might return to Bayeux.

On the thirteenth of July, 1836, on the eve of his departure, I was hastily called to see him—it was my first visit; he was sitting up in bed, panting, with hissing respiration; voice extinguished; cough hoarse; face red; eyes animated and prominent; in a word, there were all the symptoms of strangulation, with some indications of suffocative asthma. The skin was burning, pulse full and strong, the artery giving one hundred and thirty pulsations per minute. Some sputa in a vessel were thick and streaked with blood. I immediately practised venesection in the arm to the extent of fifteen ounces, which the patient bore wonderfully; some hours afterwards he was covered with perspiration, his aspect was more calm, and the pulse was diminished in force and frequency. 14th and 15th July, he continued better, notwithstanding some returns of the difficulty of breathing (*étouffement*.) Diet, pediluvium with mustard, enemata, emollient drinks, and a plaster (*vigo cum mercurio*) were prescribed.

16th. The night was not so good; the patient anticipated a renewal of the first symptoms, and demanded another blood-letting, which was practised, and followed, as before, by great perspiration and marked amelioration.

17th. New difficulty of breathing, very decided hissing; anxiety. I made another examination of the thorax; percussion was sonorous in its whole extent. The heart beat regularly and forcibly; no abnormal sound was detected. *There was no inspiratory sound*, though a slight bronchial rhoncus was heard with the cough. No redness nor pain in the bottom of the pharynx. The gullet might be pressed without producing any pain, which surprised the patient; fifteen leeches were applied at the summit of the sternum; slight amelioration; no fever, pulse soft, the same drinks.

18th, 19th, and 20th. At the request of the patient we applied twenty more leeches, and a blister to the chest. The plaster of *vigo* was renewed; the sputa became more abundant and thick, and they were occasionally streaked with blood. The patient did not complain; his strength remained, and a light narcotic procured for him a few hours' sleep.

A week passed without any improvement, during which time the patient took three potions, in each of which was a dram of the white oxide of antimony.

Our hopes were dissipated, the prognosis was bad, and on the 28th a third bleeding became necessary. This blood, like the preceding, presented a thick clot, with little serum. On the surface of the coagulum were seen, for the first time, patches of the buffy coat. The patient was not relieved by it; the *malaise* and obstructed respiration continued; the strength sensibly failed; the sputa are more abundant and puriform; the moral energy of the patient continues the same; he has no apprehensions respecting the issue of his disease.

August 1st. The night has been worse, threatened suffocation induced me to bleed again; the coagulum was covered with a thick white crust. There was no improvement; the patient gradually lost his sensibility, and died on the 2d of August, at eleven o'clock, A. M.

In the evening, I asked to examine the body, but was refused, though permitted to make an incision into the neck, when I removed the larynx and part of the trachea.

The larynx was examined at my house: on raising the epiglottis, the glottis was found obstructed by a tumour; looking through the larynx, as through a spy-glass, it was observed that the passage for air was reduced to a sinuous passage, no larger than a chicken quill. Cutting into the posterior part of the larynx and trachea, and spreading the sides of the incision, there was found *a tumour as large as a filbert, of a white colour, covered with asperities, from one to two lines long. This vegetation had a short peduncle occupying the right sinus.* It seemed to be compressed by bringing together the sides of the incision, and to expand when they were extended.¹ This tumour was of the same colour as the lining membrane of the larynx and trachea, in which was neither redness nor ulceration. The tumour cut readily under the scalpel, without producing any noise.

M. Stassin had served under the republic in a regiment of hussars. He assured me that he had never contracted the venereal disease; and since his return to civic life, his conduct had been too well known to suspect the truth of his assertion.

Vegetations.—Syphilitic vegetations may invade the superior part of the air tubes: M. Rayer has preserved the most remarkable instance we have met with.² *Cancerous tumours* are oftener found in this situation than syphilitic growths. Morgagni has an example, (epist. 28, art. 9 and 10.) We have also met with a case, (obs. 18th.)

Tuberculous tumours and productions.—It is difficult to say whether the various alterations which we find in the larynx simul-

¹ I should explain the marked improvement which followed the venesection to the momentary collapse (*flétrissure*) of the tumour, which permitted a fresh entrance to the air; as well as to the relief given to the engorgement of the pulmonic circulation.—*Author's note.*

² *Traité des Maladies de la Peau.* Atlas, pl. xv. fig. 21, 2de édition.

taneously with tubercles in the lungs, should be ranked among tuberculous productions.

Most authors do not recognise the characters of tubercles in the granulations so frequently found in the larynx of phthisical patients, but consider them inflamed or engorged mucous follicles.

Louis says, tuberculous granulations are *never* found in the larynx, epiglottis, or trachea—whence he concludes, that we should regard inflammation as *the most frequent cause* of these ulcerations.

Andral (Clinique Médicale, tom. ii. p. 195) has often observed them, and thinks they are generally tuberculous.

We will not hazard an opinion upon so delicate a question, as our researches have not been sufficiently extended.

Analogous alterations in persons who have no tubercles in the lungs, will therefore be still more difficult to classify.

It seems more easy to assign the pathological place that should be occupied by tumours in the neighbourhood of the larynx or trachea, which sometimes simulate laryngeal phthisis, and which may even, in some cases, produce it, as would appear from Morgagni, epist. 15, art. 15, quoted by us in observation No. IV. It is evident, that such tumours often present every symptom of tubercle.

Observation VII., extracted from Irish Transactions, 1820, and No. V., communicated by M. Vernois, show in what respect these tumours may simulate laryngeal phthisis. In the last case, we see M. Andral deceives himself, inasmuch as there was no autopsy to show that the lungs were not tuberculous.

The numerous cases which we have reported will obviate the necessity of entering at length upon a consideration of the other alterations of the larynx, that precede, accompany, or follow pulmonary phthisis. We will merely refer to the relations M. Louis has observed to exist between the various alterations of the larynx, the trachea, and the epiglottis. This short statistical table, although generally known, may not be considered misplaced in a work especially devoted to the study of affections of these organs.

Of one hundred and two subjects examined by M. Louis, eighteen had ulceration of the epiglottis, twenty-three ulceration of the larynx, and thirty-one had lesions of the trachea.

We see here, that the frequency of ulceration is in the ratio of our descent from the external opening of the passage. We have already given what we conceive to be an explanation of this fact.

Ulceration of the epiglottis.—In eighteen cases reported by Louis, twelve were in men, six in women. Five times they occurred alone, and without complication with those of the larynx or trachea. They were generally superficial, twice only reposing on the fibro-cartilage, and, one instance only excepted, they were on the laryngeal face of the organ.

Lesions of the larynx were seen twenty-three times in one hundred and two patients; sixteen in men, seven in women. In only

two cases were they unconnected with similar affections of the epiglottis or trachea.

The order of frequency, as to the points of attack, was as follows: the union of vocal cords, the posterior part of the cords, the base of the arytenoids—the superior part of the larynx, and last, the interior of the ventricles, which were once found ulcerated.

Ulcerations of the trachea.—Of the thirty-one cases, nine were females, and twenty-two men. They occurred most frequently at the inferior part of the trachea, near the bifurcation, and when large they occupied the membranous portion; sometimes they were situated on the submucous tissue, at other times on the mucous tissue, which was sometimes thickened. Frequently, the cartilaginous rings were eroded; once only they offered a solution of continuity; and in five cases of the thirty-one, the mucous membrane was destroyed throughout the whole extent of the membranous portion of the trachea. We shall, at present, refrain from any inductions, but merely record the facts as observed.

Hydatids.—M. Pravas relates the following case:—A captain of galley slaves was brought to the hospital nearly suffocated; respiration hissing, inspiration most difficult. All the means employed to assuage the patient's suffering proved unavailing, and after two and a half months he died.

The autopsic examination showed two connected, semitransparent oval hydatids, as large as a nut, lodged under the epiglottis; the right one occupied the corresponding ventricle of the larynx. There were two soft bodies in the upper part of the glottis, producing all the symptoms of the "œdematous laryngeal angina" of Bayle. This is an important case, because it is one that might have been relieved by pressure.

The plan of exercising compression, recommended by Thullier,¹ should not, however, be indiscriminately employed, because of the frequent inflammatory character of this disease.

False membranes.—Home, cited by Franck and Lieutaud, reports a case of false membrane cast off by a child, who had long suffered dyspnœa and altered voice: analogous false membranes were found in its trachea after death.

J. Franck has noticed a still more curious example:²

"Vir conspicuus T., triginta annos natus, Grodni inhabitans, anno 1810, auxilium meum contra raucedinem, cum laryngis dolore, tussi clangosâ, suffocationis periculum minitante, sputis puriformibus, macie, febriculâ et deglutitione læsa (sine faucium visibili affectione) quæsiverat. Morbum à refrigerio corporis in itinere contracto originem cæpisse putabat: neque minùs fassus est, juvenem se syphilide quidem infectum, sed benè curatum fuisse. Cura nihilominùs à mercurio inchoata est, morbus autem in dies gravior exstitit. Atque sic quatuor hebdomadibus elapsis

¹ Inaugural Thesis on œdematous laryngeal Angina.

² Praxæos Medicæ, tom. vi. p. 210.

æger Vilnam reliquit, aliorum medicorum curæ sese traditurus. Ab his multa et varia remedia diù frustrâ adhibita sunt. Tandem trium mensium spatio interjecto, à morbi autem initio mense nono, vehementissime tussiens, pseudo-membranam trium pollicum longitudinis, uniusque latitudinis, expuit. A quo temporis momento, non solum ab omnibus suis malis liberatus, sed etiam obesus factus est."

Andral says that pseudo-membranous productions of chronic character are less rare than is generally supposed :¹ we have never seen them.

Calculi have been found in the ventricles of the larynx. The thesis of M. Pravaz, contains the following case :

A young lady for six years, at the close of each summer, had experienced anorexia, general indisposition, and difficulty of respiration; she had first a dry cough, then heat in the throat, and soon, an acute pain in the larynx; deglutition became more and more difficult, the voice was completely lost, and the dyspnœa was extreme.

When the finger was applied to the superior part of the larynx, there was found a small fixed tumour, circumscribed and painful. The mouth and pharynx were scarcely injected. Finally, the tumour increased, deglutition was impracticable, and the expectoration was purulent; the face was pallid, the lips livid, the voice extinct, and suffocation imminent.

This condition remained three days, when the patient spit up, without effort, two stones the size of peas; they were of a yellowish white colour, very hard, and of a rough irregular form. From the moment of their expulsion all the symptoms diminished, and the patient was completely restored.

Lieutaud (lib. 4, obs. 77) quotes the following account from Kerkringius :

" Quidam immani spirandi difficultate premebatur. Non tamen tussiebat nec excrebat, nullaue erant asthmatis nec orthopnœæ symptomata; cùm superveniente febre vehementiori, illuc mittitur unde negant redire quemquam.

" In propatulum veniebant varii lapides et diversæ figuræ, asperæ arteriæ immediatè incumbentes, adeo ut hominem præfocaverint."

Organic alterations of various forms and character may occur in the larynx and trachea, as in other mucous membranes; an enumeration of them would transcend our limits, therefore we shall not continue the subject. Nor should we have reported the preceding cases, but that they were considered types with which comparisons might be drawn with nearly all the accidental lesions of these important organs.

We have but a few remarks to offer respecting foreign bodies that may be introduced from without, and which often cause immediate

¹ Clinique Médicale, tom. ii. p. 195.

suffocation, or give rise to laryngeal phthisis, if not immediately ejected.

Every one is familiar with the history of Provençal quoted by Desault.¹

A cherry stone had fallen into the man's larynx; all the symptoms of laryngeal phthisis were manifested; Desault being consulted, proposed tracheotomy, which was refused; after suffering two years the patient died, and the nut was found in his larynx.

The same author² reports the case of a man, upon whom Ferrand had performed tracheotomy, with the view of extracting a stone that had got into his larynx; the operation failed, and the patient died—the stone had become lodged in the ventricles.

In all analogous cases, at least when the body does not act chemically upon the parts, suffocation is the most pressing danger, varying according to the size and asperities of the substance; but the indication is always to extract immediately, even when the symptoms abate. Temporising in this case may cause the death of the patient.

OUGHT LARYNGEAL TO BE SEPARATED FROM TRACHEAL PHTHISIS?

It will be seen that we have not acknowledged any distinction in the preceding pages, between the ulcerations of the two parts; therefore it may be best to give some explanation at this place.

Since the commencement of this century, and since M. Cayol's monograph upon the subject, most writers have recognised them as separate and distinct affections. We will now present our reasons for rejecting this arrangement.

It is admitted that the simple forms of both arise from the same circumstances, and under the influence of the same predisposing or exciting causes.

When they are symptomatic, the same diseases occasion both; thus, pulmonary tubercles cause more ulcerations of the larynx than syphilis; and ulcerations of the trachea are also more common with the former than with the latter disease.

They are frequently co-existent in the same patient, whether idiopathic or consecutive, and often occur simultaneously in both organs.

We are surprised that Cayol should have advanced a contrary opinion. In Lonis' account of twenty-three patients with laryngeal ulcerations, there were but two whose tracheæ were not similarly affected.

The same thing has been observed by Lieutaud.³

"In cadavere cujusdam juvenis lue venerea laborantis occurrunt

¹ Œuvres Chirurgicales, tom. ii. page 258.

² Œuvres Chirurgicales, tom. ii. p. 274.

³ Historia Mat. Medic., lib. iv. obs. 81.

varicæ exostoses in facie interna cranii. INTERIORA TRACHEÆ ET LARYNGIS LATERA PASSIM CARIE LÆSA CONSPICIEBANTUR. Pulmones deprehendebantur tuberculosi, cum thymo putrido. Varicæ insuper conspiciebantur in abdomine viscerum læsiones, &c."

The same author, loc. cit. lib. 2, No. 767, reports the following :

"Secto cadavere cujusdam juvenis phthisici, præter vulgatissimam pulmonum stragem, LARYNX ET TRACHEA ULCUS SORDIDUM INTUS SITUM EXHIBEBANT. Thymus, &c."

Morgagni, (letter 15, artic. 13) says: *Eo loco, tunica laryngem convestiens erat ex ulcerata quemadmodum et quæ proximos annulos aliquot trachæe arteriæ operiebat; quanquam hic levius."*

We are surprised that Cayol, who quotes this last passage, did not observe that the lesions of both organs were simultaneous; and that he should have denied the existence of the fact so positively.

We have thus combated the opinions of Cayol, because his name is considered authority on this subject. We could also array the opposing testimony of M. Double, of Borsieri, and of J. Franck.

MM. Louis and Andral have not clearly expressed their views on this point; but we may be allowed to infer from their writings, that they attach no great importance to the part of the air passages which may be affected with these alterations.

Cayol insists upon a difference of symptoms in the two forms. We confess ourselves unable to distinguish them from each other. It will be seen in our chapter on Symptoms, that patients with the larynx affected have pointed to the trachea and upper part of the sternum as the seat of pain.

The sensations of the patient are not generally important in making the anatomical diagnosis; and as to the orthopnœa which Cayol attributes exclusively to the ulceration of the trachea, our observations on tracheotomy, show the estimate we should have of his opinion. Upon Cayol's hypothesis, how should we explain the considerable amendment which generally follows the opening of the trachea? If the obstacle existed below the artificial opening, respiration would be no easier after the operation.

We do not consider it useless to distinguish the seat or place of the lesion, but it is not of sufficient importance to make two distinct affections, where the cause is similar, the anatomical lesion the same, and the treatment differs so little.

CHAPTER III.

CAUSES.

Laryngeal phthisis is not a disease *sui generis*, as it nearly always presents itself with similar anatomical forms. It may exist alone, and without our perceiving any thing in the economy to explain its development, but it is generally a consequence of some organic lesions which, once established, become a true cause of laryngeal phthisis.

These lesions are of an extremely varied *nature*, and if we embrace them all under the common denomination of laryngeal phthisis, it is because they generally provoke nearly similar functional disorders, depending rather upon the special destination of the organ, than upon their intimate nature.

To study the causes of these diverse lesions, it would be necessary to review the whole nosological table. The object may be best attained by simply reading our cases, which will be better than any theoretical discussions into which we might enter.

We have seen chronic laryngitis with or without ulceration, produced by an acute laryngeal angina, (obs. lix.) by tracheotomy practised in croup, (obs. xv.) by a sharp cry, (xli.) by habitual exercise of the voice, (xx. and xxxiii.) by immoderate venery, (xii.) by masturbation, (xiii.) by periodical exanthemata, (xxxiv.) by cancer, (xviii.) by tumours in the larynx, (i. and seq.) by syphilis, (xvi. and xvii.) principally by phthisis pulmonalis, (xix. et alii.) In fine, those constitutions which are most inclined to develop chronic ulcerative diseases, and particularly the scrofulous and tuberculous constitutions, singularly predispose to this disease. All habits of life which favour the development of these constitutions may be considered as predisposing causes.

Internal or external tumours that compress these organs, may give rise to this disease, as appears in the following cases :

OBSERVATION IV.¹

Extreme dyspnœa—Dysphagia—Death—A suppurating tuberculous tumour opening into the trachea and compressing the air tubes and pharynx.

Mulier octogenariâ major, despirandi, deglutiendique difficultate, cum faucium ardore conjunctâ, multos jam dies querebatur, cum in nosocomium Patavinum excepta est. Ibi tam gravi paroxysmo difficilis respirationis corripitur, ut eo propemodum exanimetur. Servatur tamen, consequente sputo graveolentis puris, cui sanguis admistus erat. Cum mulier laryngem tanquam morbi sedem non modo indicaret, sed digitisprehendendo antrorsum traheret, et sic

¹ Morgagni, De sed. et causis morb. Ep. 15, art. 15.

paulò faciliùs spiritum duceret; introspectæ sunt fauces, et uvula quidem, atque ascendentes ad ipsam musculosi arcus apparuerunt retrorsùm arcti; ut id pharyngis orificium, quod ad os est, dilatatum videretur, eaque loca paulò magis ruberent quam soleant; sed nihil præterea conspicere licuit; sic dies quindecim, aut eo ampliùs, cum iis sputis et difficultate respirandi mulier perstitit, donec magis hæc urgente, irritis omnibus auxiliis, conficeretur circiter kalendas Septembris anni 1725.

Collum, in quo evidens erat morbi causam latere, dissectum est; eaque ad hunc modum inventa: In asperæ arteriæ tergo, intervallo transversì pollicis infra cartilaginem cricoideam, tumor excreverat ad magnitudinem dimidiatæ nucis juglandis, gulam quidem retropositam premens, sed arteriam illam multò magis; ut hujus viam ibi angustissimam redderet, in quâ per oblongam patebat scissuram. Hæc dilatatâ, tumoris cavum inspectum est putridâ refertum materiâ, pariete autem comprehensum interiùs duro, exteriùs verò ex quibusdam quasi milii granulis facto subflavi coloris. Ex quibus duæ quoque constabant glandulæ, tumori extrinsecùs proximæ, singulæ modicum pisum æquantes; ut ex unâ, harum simili, sed magis adauctâ effectum esse tumorem appareret. Ex gulâ sectione perducta ad pharyngem, hæc intùs maximè rugosa comperta est, sic tamen, ut digitas rugas dissolvere liceret, pharyngemque ad ampliitudinem justam reducere.

OBSERVATION V.¹

Suppurative tumour between the œsophagus and the cricoid cartilage—
Dysphagia, aphonia, symptoms of pulmonary phthisis in the last stage—
Death—Necrosis of the cricoid cartilage—Œdema of the glottis.

Mrs. Manque, of Paris, aged 64, a wine merchant, entered the hospital on the 4th of July, 1834. She has a delicate constitution; the pilous system is moderately developed; the muscles presented the appearance of the first stage of marasmus. Few details of the previous history could be obtained, as the patient articulated with great difficulty.

She had not been rheumatic, not subject to take cold, had never spit blood, nor been asthmatic. Ten years ago she had a pleurisy, with pain in the left side which lasted twenty days; since then she has had neither cough nor dyspnœa. One month ago she had a violent fever, with delirium, which her physician told her was characteristic of pleurisy (*fluxion de poitrine*.) Of this she recollects no symptoms, but was bled thrice in two days, and had blisters applied over the left posterior side of her thorax.

Menstruation commenced at 16 and continued regular until 47, when it ceased; she has had three children.

She was taken about three weeks ago, soon after leaving Hôtel

¹ Communicated by M. Vernois, Interne of the hospitals.

Dieu, where she had her last illness. This affection commenced with a dull pain in the posterior region of the gullet, so that difficulty of swallowing was one of the first symptoms.

Difficulty of respiration appeared soon after, and continued to increase, causing a very fatiguing cough, with viscid liquid expectoration. She retained her appetite, but was obliged to adopt a restricted diet because of the pain in the larynx and œsophagus; she began to have regurgitations.

Her debility, on leaving l'Hôtel Dieu, was increased by these causes as well as by a copious serous diarrhœa. The voice was perceptibly altered; she had employed no treatment for the affection, and at last, urged by the serious nature of the symptoms, she came to La Pitié.

On the visit of the 4th she was as follows:—Hair thin, fair and gray; skin dry; extreme debility, supination, but on an elevated plane.

Confusion, (*étourdissemens*), vertigo, and constant tinnitus aurium; no pain in the limbs; intellect clear; at intervals considerable faintness; nothing remarkable about the eyes; the pupils perhaps a little contracted; nostrils dry; lips violet, tongue partaking somewhat of this colour; thirst so great that she can scarcely satisfy it; anorexia; very difficult deglutition; frequent regurgitation of food; sense of weight and constriction in the pharynx; no pain in the epigastrium; abdomen sunken, neither tympanitic nor painful. Many stools of diarrhœa; urine scanty; no perspiration.

Frequent cough, with very frothy muco-purulent expectoration. Voice very hoarse; considerable dyspnœa; respiration hurried, (thirty-six in a minute;) slight pain in the larynx when pressed; loud tracheal rattle.

Auscultation was not carefully attended to, but the respiratory murmur was soft and clear; *diagnosis, phthisis in the last stage.*

Prescription: a cup of the white decoction of Sydenham, and a draught with one ounce of the syrup of poppies.

6th. The same general condition; at times the dyspnœa becomes much more violent; no sleep.—Continue the same treatment.

7th, 8th, and 9th. During these days the dyspnœa made great progress; the patient could scarcely swallow a few mouthfuls of tisan, and vomited three fourths of it, which was attributed to the ulceration of the epiglottis and the pain caused by the contact of liquid with these parts. The volume and form of the neck in the region of the larynx were not observed. The voice was lost, and the patient was in imminent danger of asphyxia. On the 9th, at the morning visit, the pulse was sometimes hard, and again imperceptible. The cough and expectoration disappeared, and the symptoms increasing in intensity. She died on the 10th, at one in the morning.

I opened the body on the 12th, at eight in the morning. Effusion of yellow limpid serum in the pleuritic cavities, (about a pound,)

very strong old adhesions near the base of the left lung, none on the right. The lungs were of a bluish colour, they floated on water, and were engorged with black blood. No tubercles. When about to detach the larynx, I felt a tumour at its posterior part which strongly compressed the œsophagus; I dissected out the parts with care—the œsophagus was somewhat contracted opposite the tumour, but not perceptibly dilated above. There was no communication between the tumour and the trachea or œsophagus. There was fluctuation, and when opened there was nearly half an ounce of concrete, thick, yellow, greenish pus, which had detached all the submucous cellular tissue from the upper part of the larynx, and thrust back forcibly the mucous membrane of the œsophagus.

The cavity would have held a large nut; its walls were fringed with false membranes, composed of many yellowish, purulent layers. The surrounding cellular tissue was friable, but without purulent fistulæ. The cricoid cartilage was entirely denuded, its edges were carious, resembling the pumice stone, and above they were hard, and appeared ossified. The glottis was quite deformed; its lips, or borders and the two cords that bound the inferior part of the ventricles, were swollen, and completely obliterated the opening into the trachea. Holding it up like a spy-glass, scarcely a ray of light could be seen. The rest of the mucous membrane was red and injected, but presented no ulceration, except the epiglottis, which was somewhat œdematous. The other parts of the larynx and bronchia were not altered; the trachea contained frothy mucus.

Heart.—The whole tissue engorged with black blood; the right cavities filled with bluish coagula; valves healthy.

Stomach.—Of a grayish colour, very much shrivelled, and with corrugations on its inner face. Intestines without remarkable alteration. The colour, alone, presented a few scattered patches of red. The uterus was small, and contained many little pedunculated hydatids, which seemed to grow from the mucous membrane itself.

Kidneys and bladder healthy. The brain was not examined.

We here see that a tumour between the œsophagus and cricoid cartilage occasioned not only all the symptoms of laryngeal phthisis, but those also of phthisis pulmonalis, so much so that M. Andral, from a superficial examination, it is true, made a diagnosis of phthisis pulmonalis in the last stage.

It is true that the abscess prevented deglutition as well as respiration, so that the patient must have died from hunger as well as asphyxia; thus we see the lungs were engorged with black blood, and the stomach was shrunk. We value this observation because it presents two causes of death, and confirms what we have said respecting the manner in which death may occur in this disease.

OBSERVATION VI.¹

Violent effort to avoid falling—Pain at the upper part of the sternum—Tumour in front of the trachea—Death—Tumour on the right of the trachea—Destruction of three of its rings by the abscess communicating with the trachea—No tubercles in the lungs.

A woman of 40, who had always enjoyed excellent health, while sitting in a chair one day, made a violent effort to avoid a threatened fall, and at the same instant experienced an acute pain at the upper part of the sternum which continued for some days; after a remission of two weeks it returned, and with it a tumour was developed in front of the trachea, which was dissipated, and the pain relieved by a plaster.

Eight months later there was cephalalgia, with difficulty of respiration, which increased for two months and compelled the patient to enter the Hôpital de l'Unité, when she had the following symptoms:—slight alteration of features; respiration laboured, sometimes threatening suffocation; a slight, rather painful swelling above the sternum and in front of the trachea; cough frequent; sputa and mucus abundant; deglutition difficult and painful at the moment when the portion of food passed that part of the œsophagus which corresponded to the disease; pulse small, corded (*serré*), frequent.

M. Corvisart suspected a tumour in the walls of the trachea, and made an unfavourable prognosis. *Treatment palliative.*

After two weeks, as all the symptoms decreased, we entertained some hope that the tumour might be discussed.

A few days later, the first pus was observed in the sputa, which continued to increase in quantity. 16th. Blisters to the arm.

19th. Exasperation of the symptoms; respiration very difficult; upright posture absolutely necessary; sinking.

20th. Cadaverous expression; functions disturbed.

21st. Death.

Autopsy.—Lungs sound throughout; a small tumour was observed near the bifurcation of the trachea extending two inches along its right side. The interior of this tumour was brown; three of the subjacent rings and the corresponding mucous membrane were half destroyed, and a communication was thus established with the trachea. The rest of the mucous membrane was engorged, and covered with brownish mucus, mixed with a white substance like that observed in the sputa.

OBSERVATION VII.²

Pain in the throat—Dysphagia—Dyspnœa—Threatened suffocation—Tracheotomy—Complete dysphagia—Death—A considerable abscess compressing the trachea and œsophagus and communicating with the upper part of the larynx by erosion.

A woman had been suffering for a month with pain in the throat and difficulty of swallowing, which continued to increase

¹ Extracted from the Thesis of M. A. Sauvée.

² Irish Transactions of 1820.

notwithstanding general and local venesections had been practised.

Dr. Carmichaël found the patient in such a state that he thought immediate tracheotomy necessary.

There was some hemorrhage, which was soon arrested; respiration was performed by the artificial opening, which relieved the patient, but deglutition continued almost impracticable. A gum elastic tube could not be introduced into the œsophagus, and the patient could not be fed; three days after the operation she threw up a quantity of pus, and expired.

Autopsy.—An abscess, extending from the second or third vertebra to the sixth or seventh, compressed the œsophagus and upper part of the trachea. It communicated with the larynx by a very small erosion; in other respects the whole respiratory apparatus was in a good state.

Independently of these causes relative to the constitution, there are still two whose consideration is difficult—*age and sex*.

Age.—Laryngeal phthisis is rarely developed before the age of puberty and is uncommon in advanced life. Of all the cases we have seen or quoted, there were few patients less than twenty or more than fifty years old; they were generally between their thirtieth and fiftieth years; the observations XI. and LIX. though relating to infants, were decided cases of laryngeal phthisis, and under No. XV. are related two instances of its following tracheotomy. The same remark has been made by all authors who have written upon this subject.

J. Franck¹ expresses himself as follows:—"Si infantes phthisi laryngæ venereæ affectos excipiam, fateri debeo, omnes ægrætos pubertatis epocham superasse; plurimi inter 30 et 40 ætatis annum versabantur."

Sex.—According to a series of observations made from 1816 to 1821 by M. Serres, at La Pitié, and those by M. Louis in his beautiful work on consumption, it has been established that, among the tuberculous at least, these alterations are more frequent among men than women. We refer the reader for a more detailed account to our chapter on organic alterations. Franck, whose authority we are glad to cite, because his remarks show that this singular influence of sex is not observed in France alone, thus expresses himself, tom. vi. p. 206:—

"Solùm novem feminas inter ægros meos invenio et inter istas quinque morbum ex syphilide acquisivêre. Quæ observatio, si cum illâ in capite præcedente allatâ comparatur, patet laryngem marium reverà longè magis quàm illum feminarum morbis obnoxium esse. Intereâ et observationem contrariam experientia mea suppetitat; die enim 17 mensis Octobr. 1816 pro viro phthisi laryngæ laborante in consilium vocatus sum, qui se jam tres sorores eodem morbo amisisse retulit."

¹ Praxeos Medicæ, tom. vi. p. 206.

These remarks relative to age and sex agree remarkably ; indeed we find women less liable to alterations of the larynx than men ; and children, whose constitutions are so analogous to those of the more delicate sex, partake of the same immunities.

As exciting causes of laryngitis, we find acute affections of the larynx, forced exercise of the voice, frequently renewed colds, repression of *dartrous* affections, blows, falls, wounds, chills, foreign bodies, &c.—These causes will be the more apt to produce laryngitis according as the patient may have the taint of either of the constitutions which predispose to it, and according to the time he may have been exposed to the influences above mentioned.

CHAPTER IV.

SPECIES.

1st. It is difficult to classify diseases so as to satisfy both the imagination and truth. If we look at the results of the efforts to establish a good nosological classification made by so many eminent men since the time of Sauvages, we shall almost conclude that it is superhuman to effect one.

It is because diseases are complex, depending upon the causes that produced them and the constitution in which they occur, and liable to be modified by many circumstances. They are functions, not entities, and these abnormal functions, like normal ones, may vary in every individual, and in every condition of life where they occur.

Whether, then, we class diseases according to symptoms or anatomical lesions, which are both cause and effect, we shall omit one of the elements of the problem, and have a defective classification.

We have entered into these details in order to meet the objections that may be urged against our arrangement, and to show the value we attach to it.

We shall divide laryngeal phthisis into four principal species :—

1st. *Simple laryngeal phthisis*—Under which head we shall embrace that produced by causes common to other phlegmasiæ. Some eminent physicians of the present day refuse to admit the existence of laryngitis, independent of consumption ; before the discovery of auscultation, and in the infancy of pathological anatomy, we may conceive that diseases of the larynx, complicated with softening of tubercles, may have been frequently considered simple laryngitis. Thus, the partisans of the opinion against which we are contending, are always complaining of the inaccuracy of the earlier observations, arguing from the inadequate means of thoracic exploration, that obtained before the time of Laennec.

It was important to collect the testimony of physicians who, having before proclaimed the isolated existence of laryngeal phthisis, could since, by the aid of this valuable diagnostic means, verify their prior views.

M. Double, who was one of the first in France (*Séances de la Société de Médecine*, an. XIV.) to point out the existence of laryngitis, independently of pulmonary tuberculisation, has since been able to collect new facts, which, by the aid of autopsy or auscultation, have confirmed his earlier convictions. His opinion, which he has communicated to us at consultations and scientific meetings, may be expressed in these terms:—

“Laryngeal phthisis is undoubtedly often united with pulmonary phthisis; but it is frequently unaccompanied by any lesion of the lungs. Many facts, proved by symptomatology, auscultation, and autopsy, establish this proposition.”

Cayol, who some years later held the same views, continued to support them; and we have heard the renowned Laennec himself, show by relating numerous facts observed in his practice, the independent existence of laryngitis. (See the observations VIII, IX, X, XI, XII, XIII, XIV, and XV.)

2d. *Syphilitic*:—that which is produced by venereal ulcers, primitive or consecutive, whether they attacked the larynx, in the first place, or were propagated from the pharynx. (Observations Nos. XVI, XVII, XLIX, (1, 2, 3,) L, and LI.)

3d. *Cancerous*:—that which arises from a cancerous tumour in the larynx. (Observation No. XVIII.)

4th. *Tubercular laryngeal phthisis*:—that which commences after the manifestation of pulmonary tubercles. (Observations Nos. XIX, XX, XXI, XXII, (1st and 2d.))

Perhaps we should admit the existence of another, which we would call *dartreuse*; but we have not yet a sufficient number of facts to establish this as a species. We shall, nevertheless, present the following case:

Miss ———, aged twenty-one, was taken with an eczema of the scalp, which soon left that position, and spread to the face, then to the alæ nasi, and to the interior of the nasal fossæ, when the face was cured. The nasal fossæ soon recovered, but a severe sore throat was the consequence; as that got well, an obstinate cough, with almost complete extinction of the voice, supervened. Topical treatment was applied to the larynx; the symptoms disappeared, but the eczema returned to the fossæ and alæ nasi, whence it was dispelled by the treatment, and in a fortnight the larynx was again seized. It was agreed to adopt general treatment by sulphur baths, mercurials, and bitter tisans; the symptoms soon disappeared, but the patient is still liable to become hoarse from the slightest cause.

EXAMPLES OF SIMPLE LARYNGEAL PHTHISIS.

OBSERVATION VIII.¹

Repeated colds.—Increasing dyspnœa.—Hemoptysis.—Voice shrill, then hoarse.—Death in the sixteenth month.—Glandular granulations in the larynx and trachea.—No tubercles in the lungs.

I knew a female, of about thirty, who had been very subject to catarrhal attacks, which terminated in spitting of blood, and great difficulty of breathing. She would never consent to being bled; the menstrual discharge was suppressed, and a pain appeared in the larynx. The voice was first shrill, afterwards hoarse. She could not be relieved by any change of position: her breathing was equally painful, whether she reclined or sat up, though the respiration was rather less painful when the head was inclined towards the thorax; her pulse was corded and frequent. She died about the sixth month of the attack, *without having suffered remarkable sweats, or colliquative diarrhœa.*

An inspection showed that the seat of the disease was in the larynx and trachea: the lining membrane was red, and covered with glandular granulations that partially occluded the air passage: the two largest were in the larynx. *The lungs were healthy*; only the vessels seemed rather fuller than usual, and the right auricle and ventricle contained a good deal of blood.

According to Portal, pulmonary phthisis often follows laryngeal and tracheal; *because, says he, the lungs are the last to be affected.*

In this case, although deficient in detail, we see that the patient died from slow asphyxia. There was no marasmus; respiration was always laboured; the patient was obliged to incline the head forward to get breath; and, finally, the lungs, their vessels, and those of the systemic circulation, were in that state of engorgement which commonly follows death by asphyxia.

OBSERVATION IX.²

Repeated colds.—Hæmoptysis.—Aphonia.—Tumefaction of the larynx.—Emollient treatment.—Death.—Ulceration of one of the arytenoids, and of one of the aryteno-epiglottic ligaments.—No pulmonary tubercles.

A nailer, aged thirty, large and of strong constitution, entered the Hospital. He has been sick for a long time, and has been frequently attacked with colds.

¹ Extracted from Portal's work on the Nature and Treatment of Phthisis. Paris, 1809, p. 189.

² From the Thesis of M. Sauvée.

The disease commenced with a considerable hæmoptysis, which recurred, after a few days, in a milder form.

Face lean, features altered, tongue natural; no pain in the throat; loss of voice; larynx increased in size. The thorax was sonorous throughout; no pain.

The larynx, though not painful, seemed to be the only affected point. Professor Corvisart *suspected ulceration of its membrane, and gave an unfavourable prognosis.*

Diluent drinks, and fumigations with tepid water, were prescribed.

23d. The same state; some pain within the larynx. A blister was applied over the painful spot; the same regimen.

24th. Remarkable improvement, cough rare, painful, mucous sputa.

26th. Return of the pain in the throat, difficult deglutition, entire extinction of the voice, insomnolence.

All the symptoms were exasperated in the beginning of the month, and an obstinate diarrhœa weakened the patient.

12th. Expectoration, for the first time, of muco-purulent matter; cough very painful and fatiguing.

15th. The three preceding days have been passed in extreme suffering, and agony. Death.

Autopsy.—The emaciation was much less than that observed in persons who die of pulmonary phthisis. The upper part of the pharynx seemed to be partially closed. One of the arytenoid cartilages was ulcerated. The left superior ligament of the glottis was destroyed by the same ulceration.

Nothing remarkable was observed on opening the thorax.

OBSERVATION IX. (2D.¹)

General emphysema of the lungs.—Organic affection of the heart.—Death from asphyxia.—Œdematous, phlegmonous, and ulcerative laryngitis, unobserved during life.

Godard Louis, aged sixty years, a carman from the department of Aisne, was brought to the Pitié on the 7th of December. Though blessed with an extremely robust constitution, he was attacked with a general pulmonary emphysema. He also had a disease of the heart, which had been pronounced hypertrophy of the left ventricle, and slight obstruction of the aorta. Being threatened with asphyxia, when he came, he was relieved by general bloodletting and blisters. Still, he occasionally relapsed into the same condition, when attempting to sit up a little. At last, one of these attacks was longer; he was considerably reduced, and, among other phenomena, the voice was observed to be nearly lost; but there was no other symptom that attracted attention to the larynx: the patient

¹ Recorded by M. Fournet, Interne of the hospitals.

experienced no pain there, and the circumstance was attributed to his extreme debility.

The last day of his existence, the aphonia became complete; respiration was very high, difficult, laboured, braying, hoarse, and having a dull sound in both inspiration and expiration. Death occurred on the 30th of December, 1836.

The autopsic examination was made the next day, twenty hours after death. There was considerable pulmonary emphysema; serous effusion into the pleuritic cavities; considerable hypertrophy of the left ventricle, with insufficiency of the left auriculo-ventricular valve, and plates of ossification on the internal face of the aorta.

We were astonished to find the larynx and trachea affected as follows:—

Their lining membrane was of a very lively red, with little whitish spots, each of which was a superficial ulcer, embracing almost the whole thickness of the mucous membrane. The ulcerations were most numerous towards the superior opening of the larynx. Two of the largest were situated upon the upper ligaments of the glottis, and extended to the epiglottis and to the aryteno-epiglottic ligaments. A considerable swelling, rather œdematous than phlegmonous, occupied the whole cavity of the larynx, and nearly obliterated the lateral ventricles. The aryteno-epiglottic ligaments were affected with considerable œdematous swelling throughout. All these alterations were greater at the upper part of the larynx, decreased rapidly towards the trachea, and disappeared about its middle.

OBSERVATION X.¹

Acute catarrh, with pain in the throat, and increased hoarseness.—Emollient treatment.—Improvement.—Relapse.—Sharp pain in the larynx.—Severe cough, purulent sputa.—Voice dull and cavernous.—Death on the forty-third day.—Ulceration of the laryngeal mucous membrane.—Caries of the arytenoids.—Trachea untouched, lungs sound.

A female, of thirty, was taken with cold and fever, sore throat, and mucous expectoration. The larynx soon became painful, and there was some hoarseness. Gentle remedies and laxatives afforded relief; but on the thirty-third day, the patient was imprudent in her regimen, and the disease became more violent.

There was no pain in the thorax, but it was very severe in the larynx. The fever became high, and the cough extremely fatiguing; the sputa soon presented a purulent aspect. The cough, which was deep and dull, might be compared to the bellowing of an ox; and the patient expired on the forty-third day.

Autopsy.—There was ulceration of the mucous membrane of the

¹ Journ. de Méd. de Corvisart, Leroux, et Boyer, vol. ix. p. 185.

larynx; the arytenoid cartilages were carious, and covered with purulent sanies that exhaled a very fetid odour. The trachea was not affected; the œsophagus preserved its integrity, and *the lungs were very healthy*, as were all the thoracic viscera.

The examination of the abdomen presented nothing worthy of note."

OBSERVATION XI.¹

N—, æt. twelve, of a sanguine temperament, was taken with an acute fever and delirium.

The fourth day, there was pain in the throat; voice hoarse and sibilant: (emollient fumigations, and a blister to the larynx.)

The eighth day, the disease seemed to incline towards a favourable termination.

On the seventeenth, the pain in the larynx was more marked; deglutition of fluids was difficult, cough frequent, pulse small, accelerated. Expectoration abundant; the features altered; finally, after sweats and colliquative diarrhœa, the patient died about the end of a month.

Autopsy.—The larynx contained a grayish liquid; the epiglottis was thinned; the cricoid cartilage was thickened in some places, and ulcerated at others.

Unfortunately, M. Laignelet does not inform us of the lungs, though it is presumable that he would not have failed to mention any important alterations that might have presented themselves.

OBSERVATION XII.²

N—, æt. eighteen, a barber, of lymphatic temperament, *after excessive venery*, experienced pain in the larynx; the voice changed, the respiration gradually became difficult; he occasionally threw off mouthfuls of frothy, red blood, and in the evening he had irregular general chills.

After suffering five months, he entered Hôtel-Dieu; when he had general emaciation, pale skin, sunken eyes, sharp features, a bright blush on the cheeks, intense pain in the throat, voice more altered, sputa purulent and lumpy, night sweats, and small, frequent pulse.

He died after staying four months in the hospital.

Autopsy.—The whole laryngeal mucous membrane was ulcerated, as were many points of the arytenoid cartilages.

The lungs offered no alteration.

¹ Extracted from the Thesis of M. Laignelet.

² Ibid.

OBSERVATION XIII.¹

N—, æt. twenty, of feeble constitution, *addicted to masturbation* since he was fifteen, about a year ago experienced pains in the larynx, afterwards alteration of the voice; at first it was shrill, and then entirely lost. Towards the last, deglutition of liquids became impracticable; the expectoration purulent and abundant; the pulse corded and frequent; and he finally died, after about a year's illness.

On opening the body, *the lungs were found healthy*, the arytenoid glands ulcerated, and most of the glandular crypts of the laryngeal mucous membrane were either tubercular or ulcerated.

OBSERVATION XIV.²

Colds, with loss of voice.—Slow progress of the affection at first, and afterwards increased frequency of the paroxysms of asthma.—Death.—Considerable induration of the soft part of the larynx.—No tubercles.

Cugney, æt. forty-nine, was an errand-man, native of Paris, robust constitution, and had served nine years as a soldier. His only previous indisposition had been two severe colds.

In 1834, he was violently kicked by a horse, and though knocked down, he suffered no other inconvenience than oppression of breathing and loss of voice, which passed off in eight days. Six months afterwards, in the midst of his laborious exercises, which compelled him to speak constantly, he was taken insensibly with loss of voice, which gradually increased, and was accompanied with cough and considerable oppression. These symptoms generally occurred at night. He employed no treatment. Since his entrance into l'Hôtel-Dieu, (February 6th, 1835,) to the 4th of March, he had three attacks of asthma, which were so intense as to threaten asphyxia: two of these paroxysms occurred in the evening, the other at night. They all yielded rapidly under the influence of blisters and hot sinapisms³ to the front part of the neck. Leeches were also applied to the same region; but all these means were but temporary, their good effects lasting only a few days; after which he relapsed into the same state.

On the 2d of March he was in the following condition:—Considerable emaciation; respiration difficult, continued, and sonorous; hissing and hoarse inspiration; expiration, on the contrary, easy, and without any sound. On auscultation, the vesicular murmur was only heard at very limited points; but, in its place, there was

¹ From M. Laignelet's Thesis.

² Communicated by M. Fournet.

³ We supposed that *hot sinapisms* were no longer employed, since the discovery that the globules of mustard were coagulated by heat, and rendered almost inert.—*Translator*.

a braying, sonorous, sibilant tracheal respiration; percussion gave a dull sound at every part of the chest; the voice was hoarse, slender, difficult, and laboured; the cough was harsh, braying, and dry; the expectoration was sometimes white, thick, not homogeneous; sometimes formed of little brownish masses, thick, mixed with blood, rather frothy, and with little whitish muco-purulent masses scattered through it. The beats of the heart were regular, without abnormal sound, but strong and lasting, especially the first. The larynx was very moveable; not painful, easily grasped, and preserved its natural form.

On the 2d of March, I first tried catheterism of the air-passages; but the gum-elastic sound, used without the stilet, was stopped at the glottis, beyond which it could not pass.

The 3d of March, the attempts at catheterism were renewed with a tube bent at an obtuse angle, and by carrying the beak of the sound as nearly as possible on the median line, I could easily make it pass between the superior vocal cords; then withdrawing the style, while the index finger, in the pharynx, held the sound, so as to avoid injuring the parts of the larynx against which it rested, it was easily pushed into the bronchia; and by withdrawing and advancing it alternately, I could assure myself that there was no tumour in the trachea.

Immediately after another attempt in the evening, the patient forcibly ejected a compact dense sputum, which was composed of brown, yellow, and whitish purulent matter, streaked with blood. After the catheterism of the 3d of March, he again threw up a similar mass, but smaller, more yellowish, and before the operation he had raised a large yellow mass, mixed with white pieces. This kind of expectoration occurred at other periods; sometimes he coughed convulsively for some instants, and was suddenly relieved by ejecting one of these muco-purulent masses; sometimes they were forcibly ejected by a simple effort of expectoration, without cough. He always felt relieved, as though these masses had been foreign bodies introduced into the larynx from without.

It is important to observe, that in each of the catheterisms that were practised, the epiglottis was standing vertically, so that the instrument penetrated the glottis without the necessity of raising the organ with my finger.

The patient was generally free from fever. If, at the moment of one of the inspirations, the trachea was grasped by the thumb and finger, it was felt to dilate sensibly; it is true, this sensation was increased by the previous collapsed state of the trachea at the moment of inspiration; but, taking this into the account, the dilatation was still quite manifest. On the morning of the 5th of March the patient died in one of the intervals of calm, or of partial relief that separated the paroxysms.

Autopsy twenty-eight hours after death.

Larynx and trachea.—There was no malformation on the exterior of the larynx, except that instead of the crico-thyroid fossa,

there was a decided prominence owing to the induration and swelling of the soft parts, and indeed this was verified upon dissection, for the crico-thyroid membrane, the cellular tissue, and the submucous follicles appeared almost cartilaginous, and were three lines thick. Before dissecting off the indurated parts, it was impossible to move the thyroid on the cricoid cartilage at their juncture; the membranes that unite the thyroid to the hyoid bone retained their natural laxity and pliancy; and their movements were free.

The epiglottis was placed vertically, and so maintained by the retraction, swelling, and induration of the middle glosso-epiglottic ligament, and the neighbouring soft parts. If it was depressed upon the opening of the glottis, it instantly resumed its vertical position when the pressure was removed; the summit, in consequence of unequal contraction on one side, seemed to have deserted the median line to incline towards the side where it was drawn by the greater thickening and induration of its ligaments.

The latter glosso-epiglottic ligaments were tense and voluminous, and formed resisting borders to the glottis, which circumscribed and diminished its diameters.

On a careful examination of the degree of contraction of the space between the right and left vocal cord, I observed, 1st, that it was most remarkable opposite the inferior cords; that the thickening of these ligaments was such that they were in contact for the lower three fourths of their extent, and even compressed each other; and that, opposite the arytenoid cartilages, there was a lozenge-shaped opening two lines long, by one or more broad; 2dly, on the contrary, through the whole extent of the superior cords, there was but a slight diminution of the space that naturally exists between them.

Immediately below the contraction there was a dense, thickened, viscid sputum, precisely similar to the masses above described.

The swelling and induration of the interior of the larynx had caused the complete occlusion of the lateral ventricles; though it was rather a closure of their orifice than of their cavity. When in juxtaposition, the vocal cords of each side presented a plain surface, behind which was the ventricle, so that, at first sight, it conveyed the impression that the vocal cords and the cavities between them had been entirely destroyed by ulcerative action.

After observing these different transformations of structure, I carefully examined the other alterations of the larynx.

First. The mucous membrane of the epiglottis, indeed of all the neighbouring parts without the larynx, was reddened, and this colour increased in proportion as we approached the interior of the organ. On the inferior face of the epiglottis the redness was more marked, and there was a thickening and softening which increased towards the inferior part of the larynx. In the whole of this extent the surface was sprinkled with whitish granulations, which were easily removed by the forceps, and which were merely engorged and softened mucous follicles. At the lower part of the larynx the mucous membrane insensibly lost its thickening and redness; at the

top of the trachea there was a large red ecchymosed patch; through the rest of this organ there was occasional redness, which gradually became paler, and *almost entirely* disappeared in the bronchia. Throughout the whole extent of the membrane that we examined, there was no trace of ulceration.

Secondly. When the mucous tissue was raised, a great many of softened granules were observed, similar to those mentioned in a preceding paragraph.

Thirdly. The cellular tissue surrounding the thyro-arytenoid and lateral crico-arytenoid muscles had acquired a thickness of four lines, and a schirrous hardness; it grated under the scalpel like true lardaceous tissue.

Fourthly. The thyro-arytenoid and lateral crico-arytenoid muscles alone were altered, scattered, and almost lost in the schirrous cellular tissue, but were still readily identified by the direction of their fibres and by their pale colour.

Fifthly. The parcel of granules that compose the gland of the epiglottis was much swollen, and their tissue softened.

Sixthly. With the exception of some points on the thyroid, and the complete ossification of the posterior part of the cricoid cartilage, the skeleton was not at all changed; the first three rings of the trachea were united into one, though two irregular lines marked the places of their primitive separation.

Lungs—both were adherent throughout by strong and abundant cellular tissue. There were two kinds of alterations at different points. First. The most common was a reddish brown tissue, easily torn, containing a great many very large air bubbles that started out upon compressing the cut surfaces. This tissue was engorged with blood, intimately combined with it, and not merely effused; so that it was almost impossible to express it, or wash it off. The colour, and want of resistance, made it resemble red hepatitis; but, on the other hand, it possessed characters that constituted it very distinct from the alteration of the first stage of pneumonia. Secondly. In some limited points the pulmonary tissue was of a grayish, brownish red, and of a consistence that reminded one of the alteration known as carnification of the lungs. This portion was destitute of air bubbles; a little engorgement was found in circumscribed parts of the lateral anterior regions, but there was a great deal of emphysema. It is doubtful whether either of the lungs contained one or two cubic inches fit for respiration.

OBSERVATION XV.

Chronic laryngitis succeeding croup.

Mitler, aged five years, was tracheotomised in the last stage of croup.

The symptoms disappeared, and on the fifteenth day we removed the canula. Six weeks afterwards, the voice, which had never been quite restored, began to fail; the little patient experienced some dyspnœa after violent exercise, going up stairs, running, or even walking fast.

The inspiration was sibilant, especially when he spoke much, or recited his lesson. These symptoms continued for three weeks, at which time we were consulted. A powder of one dram of alum to one ounce of sugar was blown into his larynx four times a day, and in a few days he was cured.

A similar fact.—The same thing occurred with young Branville, aged seven years, who had also been operated on in the same way in a severe attack of croup. In his case, insufflations were not necessary; revulsives and pediluvia, gradually diminished the oppression, and the mucous membrane of the larynx completely relieved itself.

EXAMPLES OF SYPHILITIC LARYNGEAL PHTHISIS.

OBSERVATION XVI.

M. P., aged thirty-six, living in Auxerre, called upon us on the third of January, 1834, for an aphonia that had commenced three years ago, and which had been complete for six months. He gave the history of the disease as follows:

Ten or twelve years ago he contracted a blennorrhagia, and eighteen months afterwards he had chancres on the corona glandis. He was very mildly treated; the blennorrhagia yielded in two or three months to emollients followed by balsam copaiba, and the chancres were treated by mercurials; they soon yielded, and the patient, then a young man, tired of pursuing a treatment which appeared futile, threw aside the medicines as soon as the ulcers were healed. He continued to enjoy good health until 1830, at which time he frequently had a sore throat, with hoarseness, and some difficulty in swallowing. Emollients and leeches generally dissipated these symptoms, the gravity of which was not suspected by the patient.

In the course of 1832 the voice was perceptibly altered, and the sore throat was almost unremitting, though M. P. did not become alarmed, because he attributed these derangements of his health to the fatigue to which he was exposed, and to the continual efforts of the voice which he was obliged to make in his occupation.

Towards the middle of 1833 the pain in the throat became per-

manent, the difficulty of deglutition increased, and the voice daily lost its natural sonorous tones. At the same time his appetite diminished, and his ordinary freshness of colour was replaced by a yellowish tint and precocious wrinkles.

Notwithstanding all these symptoms, wishing to relieve his father from care, he continued his rude profession, following the prescription of M. Paradis, which was no doubt very judicious, but being without avail, he came to place himself under our charge.

Present state.—The patient seemed to be a man of strong constitution; his temperament sanguineous, eyes bright, movements quick, appearance intelligent. He complained of a pain in the throat, which for three months had almost prevented him from swallowing liquid or solid food; during the same period he had suffered with a wry-neck, that had kept his head turned towards the right shoulder. The patient could scarcely obtain a few minutes' rest, tormented as he was by the pain that the slightest involuntary motion caused him while asleep. The antero-superior border of the left trapezius muscle, and its insertion on the same side were painful under pressure.

The voice was nearly extinct, and the patient obliged to speak low. When he raised his voice, the first syllables only were heard. No decided inflammation was found in the mouth; the tonsils, the pharynx, and the veil of the palate were *perhaps* a little red, an indication of chronic inflammation or congestion. There was no uvula, nor any cicatrix in its place, and his parents declared that he had always had a nasal voice.

Externally, the laryngeal region was decidedly swelled; pressure on the thyroid cartilage gave some pain.

There was no fever; the appetite, although diminished, was so good that the patient blamed his sore throat, because it prevented his gratifying it. The digestive functions were unimpaired; the respiratory murmur pure throughout the thorax. There was an occasional slight, dry cough, caused by a sort of titillation in the throat; no spitting of blood: he expectorated some small rounded, viscid, transparent, and occasionally yellowish sputa.

There was considerable dyspnœa (*essoufflement*) when the patient walked fast, or went up stairs.

Our first visit was in the evening. We sent the patient to bed, and applied an ammoniacal blister to the affected part of the trapezius, which was spread with a grain of the sulphate of morphia, and prescribed frictions morning and night, with the following:—

R. Ung. hydrarg. fort. ℥j.
Hydriod. potass. grs. xxxvj. M.

The next morning, he was delighted to have slept the whole night; his wry neck had disappeared, and he was charmed with turning his head in every direction. We touched the gullet and larynx with a solution of equal parts of water and nitrate of silver. The frictions to be continued.

Four days later, the pain in the throat had nearly disappeared; the patient swallowed food and drinks with pleasure; the voice was *perhaps* rather less cracked.

We laid aside the topical application of morphia to the blister; the wry neck did not return. We directed the patient to touch his throat with a solution of nitrate of silver, which he could easily do with a little instrument that we gave him. The frictions were continued.

After twenty days of this treatment, during which M. P. took four baths, and used full but mild diet, the voice recovered its natural volume, or nearly so, for his friends had forgotten the original sound, which they had not heard for so long a time.

There was no pain in the throat, notwithstanding the frequent exposure to cold and moisture on the banks of the river. The dyspnœa (*essoufflement*) had disappeared.

Suspecting that syphilis had something to do with the disease from which M. P. had been so happily relieved, we proposed a mercurial treatment. He took a bath of the sublimate; but business called him to Paris, whither he went, and laid aside all treatment.

Twelve days had scarcely elapsed, when the pain in the throat returned. The patient wrote for the formula of the solution of nitrate of silver: it was sent, and all the symptoms disappeared under its use.

Returning to Auxerre, he took cold in the carriage; and when he arrived he had pain in the throat, and the wry neck had reappeared: two days of the same treatment sufficed to overcome these symptoms, and the patient, thinking himself cured, neglected the general means above mentioned, and married about August or September.

During this period we had removed to Paris. On the 18th of November we received a letter from M. P. announcing his arrival, and begging our attendance.

On the 19th, we found him suffering a good deal with his throat, and with a considerable extinction of the voice. At the base of the left tonsil, at its junction with the tongue, there was a circumscribed but deep ulcer, surrounded by a very dark circle of inflammatory redness. The whole aspect of this ulceration had something suspicious about it, though not precisely like a true venereal chancre.

We urged perfect rest, directed him carefully to avoid cold and moisture, and touched the ulcer with a solution of eight grains of the sublimate and two grains of opium to an ounce of water, and at the same time ordered pills of the proto-iodide of mercury.

The patient could not swallow the pills, which were rejected by the nose, and on account of his business could not remain in doors. In spite of the cold, wet weather, he daily left his room at six o'clock, and went about town to sell his goods, exposing himself to all changes of temperature. Besides, he was obliged to speak

constantly to his workmen, which he admitted was very fatiguing to his throat.

We substituted the liquor of Van Swieten for the pills of protoiodide of mercury, but as his stomach would not bear it, we were forced to lay it aside. He objected to the mercurial baths, which rendered him very sensitive to cold. We dared not use mercurial frictions to one exposed the whole day to cold and moisture, and were limited to local applications, hoping that our patient would take rest, and undergo a methodical treatment, as soon as he had finished his business.

On the 22d of December, the ulceration was completely cured, and the pain almost gone, but the voice was still cracked, (*violée*;) the patient went to Auxerre, where he promised us he would adopt suitable treatment.

He did nothing.

On the 23d of February, 1835, we saw him again in Paris. The pain in the throat had returned; the whole pharynx was red, and the tonsils were much tumefied, but no ulceration was observed. There was intense headach; the face was red, the eyes injected; the pulse, natural in frequency, was full and hard.

We prescribed confinement to his room, an emollient gargle, sinapised pediluvia night and morning, and twelve leeches to the anus.

The patient, still engaged with his business, instead of keeping his chamber, remained in the open air, exposed to the wind and rain, from morning till night. The pediluvium and gargle having diminished the pain in the throat, he neglected the leeches, because he was unwilling to lose the time.

We saw him on the 2d of March: he said that he had suffered greatly with his throat for three days. We examined him, and were alarmed to observe that the left tonsil was half destroyed by a very deep chancre, as large as a five-sous piece; its prominent and ragged edges, and its grayish base, but too plainly disclosed its venereal character. The patient was afflicted, and promised to do every thing we might ask.

We again recommended rest, which he much needed. We applied the twelve leeches to the anus, and touched the ulcer according to the method of M. Malapert, with a solution of sublimate eight grains, opium two grains, and water one ounce.

We again tried the liquor of Van Swieten, with which we associated a solution of the extract of opium, to be added at the moment it was used: we gave a tisan of sarsaparilla.

Four days of this treatment stopped the progress of the ulcer; its edges sank, it assumed a better appearance, and was less painful. From this time the patient resumed his labours, despite all our repeated advice, counting, he said, upon our prescriptions. The ulcer was completely healed at the end of eighteen days, notwithstanding the exposure to cold and damp, and although M. P. had merely touched it with the mercurial solution for a fortnight.

He had to return to Auxerre; and on the 24th of March, the day of his departure, he attracted our attention to the swelling of his feet that had just appeared. This symptom, added to considerable emaciation, loss of appetite, and general debility, seemed a bad omen.

He had scarcely reached home when the œdema increased; and as diarrhœa supervened, the antivenereal treatment was necessarily suspended.

Although every thing was done, for two months, to combat the serous infiltration, it would not yield, but reached the peritoneum, and the patient finally died about the first of June. During the latter stage of the disease, he did not suffer any pain in the throat.

He had taken internally five grains of the sublimate during the whole course of his disorder, and three baths with three drams to each.

There was no autopsy.

M. Paradis wrote, that with a most careful examination of the chest during life, he had been unable to discover any sign of pulmonary disease. We had made the same remark.

OBSERVATION XVII.

Syphilitic laryngeal phthisis.—Mercurial treatment.—Cure.

Rousset, a cook, aged thirty-one years, large and of good constitution, a blonde, with a lymphatico-sanguine temperament.

She was married and had two children, one of whom died at birth, the other at the age of forty days. She has never been sick; her mother died in childbed, and her father, at fifty-two, enjoys good health, except an *asthma*, which is very troublesome. Almost every day he has a fit of coughing, which expels a good deal of mucus, and then ceases for the rest of the day. This he attributes to the dust he inhales at his occupation of baking.

The patient has never had cold until last February, when she was taken with a severe catarrh that required several bloodlettings, and lasted three months.

While suffering under this cold, she was suddenly taken with hoarseness when sitting on a stone bench. This continued, despite the removal of the catarrh, and went on increasing until the voice became completely extinct.

Present state, (September 18th, 1835.) Complete aphonia, slight cough, *little pain in the throat*. The patient, who has always been short breasted, says the dyspnœa has increased since the appearance of the aphonia. The least exertion causes quick and laboured respiration, though the sound is free and pure throughout the chest.

There is no pain in the larynx, even under considerable pressure. The pharynx is not red; the tonsils are the seat of a circumscribed

redness, without decided tumefaction. The right one presents a solution of continuity, which resembles an old cicatrisation.

The skin is florid and soft; her *embonpoint*, although diminished by indisposition, is still considerable. There is no other inconvenience than the aphonia. Appetite good, digestion easy, menstruation regular, no fever.

Prescription.—Rest.

28th September. Same state.

Prescription.—Make ten inspirations a-day with a portion of powder composed of one eighth acetate of lead and seven eighths of powdered sugar-candy.

25th. The patient finds her voice somewhat restored: we can hear her more easily.

Same prescription.

1st of October. The voice is decidedly stronger and clearer, the general health is good; the patient, who never has any pain in the throat, complains that for three months she has felt an acute pain in the right ear when she swallowed. The throat being carefully examined, it was perceived that the right tonsil is the seat of two or three small ulcerations; superficial, but of a suspicious aspect. The left tonsil has a slight erosion of its mucous membrane. The bones of the nose have been a little swollen for a fortnight; the skin over the tumour is red, tense, and painful on pressure. She says that sometimes during the past year, she has passed purulent matter by the nose. She denies having ever had any thing that would lead her to suspect a venereal disease. Her husband has had it for fifteen months, but has abstained from connection during his indisposition?

Same prescription.

3d of October. The voice is still stronger and clearer. The general health continues good. The physician who takes charge of the ward laid aside the saturnine inspirations.

8th of October. The voice is little changed. She expresses herself better than yesterday, because she had obtained some of the powder of the acetate of lead, which she had used, contrary to the prescription of the physician.

The patient, having left the hospital, came to consult us. The voice is the same; the tumour on the left side of the bones of the nose is less red, but painful to the touch: looking at the handkerchief we saw that the mucus was mixed with yellow, greenish purulent matter, streaked with blood and without odour. The respiration was easy by each nostril, the throat was not painful to the touch or on swallowing; the slight ulcerations of the tonsils were flattened, but not entirely dissipated. We touched the larynx with the nitrate of silver, although she had her menstrual discharge.

13th. The voice is still about the same, perhaps a little stronger. We touched again with the nitrate of silver.

15th. Same state; touched again with the caustic. The nose is as before.

20th. The patient is chilly; the voice is again completely lost; the nose still suppurates freely; the external swelling continues, and is perhaps increased. Suspecting a venereal affection, we prescribed the pills of Dupuytren, (three per diem,) and the tisan of guaiacum and sarsaparilla. Topical applications were laid aside.

23d. The same state continues; perhaps the voice is rather clearer. We prescribed, besides the pills and tisan, six inspirations a day, of

B. Hydr. chlor. mit. ℥ss.
Hydrar. perox. grs. xii.
Pulv. sacch. purific. ℥ss. M.

27th. The voice is better; the nose in the same state.

30th. The melioration, though slight, continues appreciable.

Same prescription.

8th November. All treatment has been laid aside since the 2d, because she had no money to purchase medicines;—the voice is sensibly improved; the nose is less swollen and red; suppuration continues. We persuaded her to resume the treatment, and we substituted the tisan of bitter-sweet for the sarsaparilla.

14th. The improvement goes on increasing; the voice is almost natural; the nose runs as before, but is less red and less tumefied.

Same prescription.

The patient being destitute of means, and unable to pursue the treatment, we persuaded her to enter the Hôtel-Dieu; she was admitted into the ward of M. Récamier; we called to see her at the end of a week, and found she had left the day before.

5th of February, 1836. We met the patient, who was coming, she said, to give us an account of herself.

She had been twenty-four days at the hospital St. Louis, where she had been subjected to an anti-syphilitic treatment of sarsaparilla tisan, sudorific syrup, and pills of proto-chloride of mercury.

Her voice is natural; the nose had ulcerated externally while she was in the hospital, but the cicatrix is now firm. The nasal mucus is still purulent and sometimes bloody.

The tonsils have deep ulcers. The general health is good.

She has been urged to claim our advice by the physicians of St. Louis, who regretted her leaving them.

We prescribed the pills of Dupuytren. We again saw her after she had followed our treatment for some time, and was perfectly cured.

EXAMPLE OF CANCEROUS LARYNGEAL PHTHISIS.

OBSERVATION XVIII.

Hoarseness — Oppression — Orthopnœa — Threatened suffocation — Tracheotomy — Improvement — Introduction of a permanent sound — Death eleven months and a half after the operation — Tubercles in the lungs, some of which were softened — Carcinomatous tumour in the larynx — Destruction of the cartilages.

Mrs. P., aged thirty-two years, wife of a wine-merchant, has always enjoyed good health; none of her kindred have suffered with phthisis. There is nothing to induce a suspicion of syphilis. In August she went to Versailles; exposed herself in the park, and returned with a hoarseuess that nothing could control.

Her general health continues good; she has never had hæmoptysis, oppression, nor cough.

In September, 1834, more than two years after this occurrence, there was complete extinction of voice.

In the beginning of December there was some oppression and shortness of breath when the patient walked fast.

15th December. The oppression, which had hitherto been slight, now became constant during the night, and there are occasional fits of suffocation.

1st of January. The paroxysms become more intense and frequent; sometimes they seem to threaten asphyxia. The family, justly alarmed, called us in consultation with MM. Gendron, Hymely, and Guillon. It was decided that tracheotomy was the only resource, but that it should be postponed as long as possible.

6th of January. Asphyxia was so imminent that we were called in the night to perform the operation; which terminated happily, except a venous hemorrhage, which was checked by compression.

From the instant the air had free access to the lungs by the artificial opening, she experienced a great improvement.

10th January. She sat up, and on the 1st of February went to her neighbour, Dr. Evrat, who was affected with a similar disease, to persuade him to undergo the same operation.

For five months the improvement continued. She constantly wore a canula in the trachea, and when she wished to speak she closed the aperture with her finger. Towards the third month she could in this way articulate some words at the top of her voice.

In September, 1835, eight months after the operation, the tumour, which had remained stationary at the left side of the larynx, began to increase rapidly, and soon appeared between the upper border of the wound and the canula. Ulceration was soon set up, and frequent hemorrhages resulted.

On the 15th of November, she was suddenly attacked with fever, with a stitch in the side, and with a very fatiguing cough. On

the left side of the thorax all the signs of pleuritic effusion were observed. Hectic fever ensued, and the patient died about the 10th of December, 1835.

Autopsy.—The lungs offered many tubercles, some of which were softened.

A considerable purulent effusion occupied the left pleuritic sac.

The thyroid gland was decidedly hypertrophied, though its tissue was sound.

The *larynx* was the seat of extremely serious lesions. A great many tumours of variable size, isolated or grouped, occupied all the interior of the larynx, the epiglottis, and a part of the trachea; externally, they projected considerably above the canula, and before the larynx, making a tumour as large as a middle-sized apple. They were here uneven and irregular, and the skin over them was livid, thin, and ulcerated.

On each side, principally on the left, and before the thyroid body, there were a great many similar little tumours in the cellular tissue.

Within the larynx, at the points unoccupied by the tumours, the mucous membrane was ulcerated and fungous. The aryteno-epiglottic ligament of the right side was healthy, except a slight swelling of the mucous membrane; the left ligament was converted into an irregular mass, of the same nature as the tumours.

The cartilages of the larynx were broken, and the fragments were found in the tumours.

The tonsils were healthy, except a slight tumefaction. The œsophagus, was so contracted at its commencement, that it was not more than two lines in diameter.

Cutting into the tumours we have attempted to describe, a few of them were consistent, and creaked under the scalpel, having the colour of the inside of a horse-chestnut, and resembling, in consistence, encephaloid, rather than tubercular tumours,—while the smoothness and colour of the cut made them analogous to tubercular ganglions.

The others were softened and converted into yellowish matter.

M. Cruveilhier, to whom we showed the specimen, pronounced the affection to have been of a cancerous character.

EXAMPLES OF TUBERCULAR LARYNGEAL PHTHISIS.

OBSERVATION XIX.¹

Tubercular laryngeal phthisis—Suppurated pulmonary tubercles—Deep ulcerations of the larynx—Destruction of the epiglottis.

A gardener, aged thirty-three years, tall, of a lymphatic and sanguine temperament, of a strong constitution and good figure, came

¹ Louis, *Recherches sur la Phthisie*, p. 254.

to the hospital of La Charité, on the 6th of September, 1824. Five years before, he had peripneumonia, after which respiration remained perfectly clear, and from an earlier period he had been subject to a hoarseness which recurred every winter. He attributed his indisposition to a sickly season, and had discontinued his labours for six weeks. At first there was cough, with irregular chills, and clear and rare sputa, like broken saliva. The cough continued; the sputa have been rather less clear and more abundant for four months. He has always been very sensitive to cold; the least depression of the temperature gave him a chill. He has had almost constant copious night-sweats, and the fever has increased for the last six months. For the last three, the voice has been somewhat changed; the upper part of the larynx has become the seat of acute pain, and for six weeks drinks have been occasionally rejected by the nose. The appetite had been diminished from the first; for some time digestion has been bad, and there has been occasional vomiting during the cough. No pain in the epigastrium; no pleuritic affection; no hæmoptysis; emaciation has been advancing for three months.

Seventh September, face rather pale, debility, insomnolence from the cough; hoarseness, voice broken, extremely cracked. Constant sharp pain between the thyroid cartilage and hyoid bone, with dryness and heat, increased by the cough, by speaking, by bending the neck, and by deglutition, which is often difficult, and provokes the rejection by the nose of part of the drinks. The cough is frequent; oppression during the night; a few opaque, yellowish or greenish sputa floated or were at the bottom of an abundant transparent fluid. The chest gives a clear sound on both sides anteriorly. Pressure is painful under the left clavicle, the expiration tracheal; under the right the respiration seemed rather stronger than natural; between the shoulders it was bronchial, and the voice very ringing—pulse moderately accelerated, heat natural, tongue and pharynx in a healthy state, epigastrium not painful. The patient had a good stool during the night, and only complained of the pain in the throat. Prescr.—*Looch, potion gommée, deux crèmes de riz.* (A linctus, gum water, and two portions of rice.)

The pain continues. There was for some days only a slight heat in the larynx. Constant aphonia, sputa, greenish and thick. Diarrhœa supervened, with loss of appetite, and continued, without interruption, from the 15th to the 31st, when he died. In the mean time, the epigastrium was sensitive to pressure, and the patient imagined he perceived pulsation with the pain. The tongue continued natural.

Autopsy.—*Neck.*—There were numerous little ulcers scattered over the base of the tongue and the inferior parts of the pharynx.

The epiglottis, the lateral ligaments, and the superior vocal cords were entirely, and the inferior cords were partially destroyed. Almost all the surface corresponding to this destruction had an uneven aspect, a reddened colour, and some hardness. The aryte-

noid cartilages were healthy, and their articular surface naked. The mucous membrane of the trachea was of a delicate rose colour, of a natural thickness and consistence.

Thorax.—The lungs were voluminous, and the pulmonary vesicles were generally dilated. The right lung adhered throughout, the left was perfectly free, and had at the summit a sort of depression which corresponded to a small hard mass of gray semi-transparent matter, placed half an inch from the surface, whence a number of rays of the same character were sent off. Near it was a cavity of medium size, furnished with a false membrane, and some portions of hepatised lung. In other parts there were many gray semi-transparent granulations, which decreased from the summit to the base of the organ. In the upper lobe of the right lung there was a considerable excavation, communicating with another in the lower lobe. They contained a red, thick opaque fluid, and were tapestried with a gray, firm, semi-transparent false membrane. The rest of the superior lobe contained many softened tubercles and gray granulations, which were numerous in the lower lobe. Heart and aorta in a natural condition.

OBSERVATION XX.¹

Pulmonary phthisis, ten months afterwards symptoms of laryngeal phthisis.
—Death after three years.—Larynx ulcerated.—Lungs tuberculous.

N——, crier, aged forty years, very robust, and of a sanguine temperament, had, during his infancy, two attacks of quinsy at the age of puberty, nasal hemorrhage, and at thirty-four, hæmoptysis. From that time he occasionally felt pain in the chest; the cough, at first dry, was afterwards accompanied with purulent sputa, and with chills in the evening, and night sweats, chiefly on the thorax.

A year and a half after the establishment of the pulmonary phthisis, symptoms of laryngeal phthisis were developed; the voice was gradually lost; the larynx became more voluminous and painful to the touch; liquids were swallowed with pain; marasmus finally ensued, and the patient died after three years of suffering.

Autopsy.—The lungs were tuberculous at some points, in others, ulcerated, and containing *foyers* of pus. The laryngeal mucous membrane was very much ulcerated.

OBSERVATION XXI.

Laryngeal, after pulmonary phthisis.—Aphonia for eighteen months.—Prior history unknown.—Death.—Remarkable alteration of the larynx.—A tubercular excavation healed.

A mason, aged forty-four years, entered the wards of the Clinique of the Medical Faculty of Paris.

¹ Extracted from the Thesis of M. Laignelet.

He was thin, fretful, and appeared hypochondriac ; intellect dull ; when questioned he answered in monosyllables, and seemed a very idiot. No fever.

He has had aphonia for eighteen months, no other symptom that he complained of, and it was evident that he had been brought to the hospital by his parents, in order to rid themselves of the trouble of keeping him. We learned that he had been idiotic twice, and that he had recently fallen into his present state of prostration after an attack of fever.

He remained bed-ridden for three weeks, without wishing to rise, without speaking a word, without eating, and finally died of starvation.

At the autopsy the brain offered no alteration ; the intestines were shrunk and rather inflamed.

The respiratory apparatus chiefly attracted our attention ; at the summit of the left lung there was an enormous tubercular excavation which could have contained the fist—its walls were chiefly furnished with a soft membrane, analogous to the mucous tissue ; at points a semi-cartilaginous consistence prevailed ; the surrounding pulmonary tissue was of a blackish gray, and presented some tubercles that were not softened. At the summit of the other lung there were also a few crude tubercles.

The larynx, detached with care, offered the following alterations :

The vessels at the base of the tongue were much injected, and even dilated, so that all this region presented a diffused rose colour, beneath which were large red, vascular arborisations. The same kind of injection was observed in the mucous membrane of the top and sides of the epiglottis, as well as in the excavations between the external face of the aryteno-epiglottic ligaments, and the inner face of the thyroid cartilage, but it became paler as it approached the under side of the epiglottis, and the inner surface of the larynx.

The colour was blood red, and so uniform that it hid the subjacent arborisations. *Within the larynx*, the pale injections were more marked, and more arborescent about the ventricles and vocal cords than at any other part of the cavity. The mucous membrane was covered with a pale rose coloured mucus ; this membrane was decidedly thickened, particularly in the larynx, and the alteration was more marked on the vocal cords and ventricles than in their neighbourhood.

Nothing unnatural was observed in the upper opening of the larynx nor in the epiglottis.

The superior vocal cords were much swollen, especially the left, the swelling reached to the base of the epiglottis, nor was it mere enlargement ; there were mamillary protuberances, and distinct, but small ulcerations, as large as a pin's head ; and at the back of the superior vocal cords they were interrupted by a deep ulceration as large as a cherry-stone. On the right side the ulceration had a true cicatrix, which was irregular, whitish, hard, and mammelliform. On the left side the ulcer was deeper and circumscribed by a black-

ish tissue, and communicated with a sort of excavation, the black bottom of which was formed by the posterior face of the ossified thyroid cartilage which had begun to be necrosed.

The inferior ligaments of the glottis were less ulcerated than the superior; still the left one seemed divided for the most of its length by a longitudinal and superficial ulceration, the bottom of which was cicatrised.

The ventricles of the larynx were tumefied, their capacity was slightly diminished by the swelling of the ligaments above and below. A blackish tint was observed on each side of the inner face of the larynx, below the vocal cords, and opposite the cricoid cartilage, it appeared to belong to the deep seated parts, and to be seen through the transparent mucous membrane. The exterior of the larynx offered no alteration whatever.

In this case we see an aphonia that lasted eight months, and a serious alteration of all the tissues of the larynx. These disturbances evidently followed the softening of the pulmonary tubercles, which could be seen in the large cavern at the summit of the left lung. The sort of mucous membrane that lined this cavity, showed that the softening had long been effected.

The brain presented nothing remarkable, and we are forced to conclude that death was chiefly induced by the organic lesion of the larynx, at first produced by the matter of the softened pulmonary tubercles, and afterwards continuing, although the cavities seemed disposed to heal.

Possibly the lesion of the larynx in its turn contributed to produce the crude tubercles that were observed in the lungs at the moment of death. May not the laryngeal phthisis have been successively effect and cause?

OBSERVATION XXII.¹

Feeble constitution, with congenital predisposition to phthisis.—Frequent recurrence of catarrhs, generally neglected.—Hoarseness; increasing difficulty of respiration, threatening asphyxia.—Progress slow at first, afterwards rapid.—Effects of medical agents at first doubtful, afterwards imperceptible.—Tracheotomy.—Complete recovery from the operation.—Threatened tubercle of the lung.—Left the hospital.—Death from acute phthisis three months after the operation.—Pathological anatomy of the larynx and trachea.

Joseph Morin entered the hospital on the 24th of June, 1835; he was thirty-years old,—a turner,—born at St. Senas,—generally resided at Ivry. In consequence of his delicate health, and feeble, lymphatic constitution, he could not give us a distinct account of the commencement of his disease, although he related what had happened for the last eighteen months. During this period he had been subject to frequent colds, with pains in the throat, and hoarse-

¹ Communicated by M. Fournet.

ness. Three months before he entered the Hôtel-Dieu, having one of his attacks, he had applied leeches to his throat. It also appeared that his mother and one of his brothers or sisters had died of phthisis; he had seemed better than usual, and was taking iodine by the advice of a country physician.

On the 24th of June, the day of entrance, he was feeble, rather pale, somewhat emaciated; voice hoarse and broken, with a sense of pain or rather obstruction in the throat, and in the region of the larynx, to which he often put his hands; expectoration rather scarce, viscous, and thick, after fits of coughing and stifling, which were at first rare and slight, but finally acquired increased frequency and intensity:—while they lasted, the respiration was hurried, orthopnœal, sonorous, sometimes rather hissing, the face was anxious, and the features contracted; at other times the patient was calm and the respiration only a little sonorous and accelerated. The exploration of the chest gave little result; the sound was good, both right and left, and an obscure respiration, neither expanded nor vesicular, was perceived at the summits of the lungs, especially of the left, and no abnormal sound was observed, except a slight indistinct crepitus, which towards July became more distinct and persistent. There was an occasional, irregular, febrile condition, with some dryness of the skin. For the first fortnight, gargles, emollient cataplasms to the neck, the frequent application of a few leeches to the lateral regions of the larynx, pediluvia, and a mild diet, were the only means resorted to. At first they were uncertain, and finally lost all influence upon the disease, which became worse and worse.

On the 8th of July the voice was lower, hoarser, and more obstructed, and the respiration more difficult, laryngeal and hissing. These symptoms increased with astonishing rapidity. The patient suffered continual orthopnœa, and occasional fits threatening suffocation: which were only relieved by the expulsion of a portion of dense viscous mucus. Since the beginning of July, the larynx had been rubbed with the unguent of Autenrieth,—a good many pustules appeared, which provoked a sharp smarting, but produced no melioration of the dyspnœa. Leeches were applied to the sides of the larynx on the 10th and 11th, but without any benefit.

On the evening of the 11th, wishing to postpone tracheotomy by relieving the threatened asphyxia, I applied a blister to the front part of the neck. It operated finely, though the patient scarcely felt the pain; but on the next day he had more orthopnœa, and in the evening his face was pale, ashen, and of a violet tint about the mucous orifices; the tongue was pale violet. The coldness of the extremities, the clammy sweat on the whole body, which communicated the sensation of cadaveric coldness to the face and chest, all announced a speedy dissolution. With a faint and broken cry he demanded the operation. I practised it immediately.

It afforded relief; and after the usual accidents, respiration was

accomplished through the canula, and convalescence was rapidly established.

From the 3d to the 9th of August, the patient continued in a comfortable condition, occasionally interrupted by fever, malaise, and debility; about the end of this time, he fell into a state of ennui and nostalgia, which caused a constant desire to return home. On the 19th of August, yielding to his demands, we let him go; as he could now wait upon himself and attend to the canula. When he parted from us his words were rather higher, and better pronounced than they had been. By auscultation, we perceived at the anterior summit of the left lung, a slight crepitant rhoncus, but only on strong inspirations; the resonance of this side of the chest was perfectly good; the obscurity, and incomplete pulmonary expansion, hitherto observed, still continued.

Morin went to live at Ivry, where he seemed to improve rapidly at first; but in spite of his care, the good regimen to which he submitted, and the great healthfulness of the place, the same general fever and restlessness, observed at l'Hôtel-Dieu, returned, and soon assumed the hectic character. Emaciation, progressive debility, and an abundant colliquative diarrhœa, followed; and after escaping the dangers of a serious operation, this unfortunate man died towards the end of September with the rapid progress of an acute phthisis. To the last he breathed through the canula without experiencing any difficulty.

The physician who attended him at Ivry, when he opened the body, found great tuberculisation of the summits of the lungs, especially the left. He had the goodness to bring us the larynx and trachea, which I showed to M. Trousseau; and after examining it, we had it drawn by M. Chazal.

The os hyoides and the thyro-hyoid membrane were not altered. The tissues that covered the anterior part of the thyroid cartilage, preserved their colour and natural elasticity. But the cellular tissue on the lateral parts of this cartilage was rather dense; and the muscular fibres of this region, both the thyro-hyoids and the inferior constrictors of the pharynx, were brown or blackish, and slightly softened. The space comprised between the inferior border of the cricoid cartilage, and the first ring of the trachea, was occupied by a prominent, irregular tumour, formed of the scirrhus induration of the soft parts of this region. The cellular tissue was whitish, and of a semi-lardaceous consistence, while the brown muscular substance was confounded with it.

This induration and swelling extended through all the upper part of the trachea, especially around the wound of this organ; but it decreased as it left the larynx, so that the cellulo-fibrous tissue that surrounds the trachea was healthy in its two lower thirds.

The opening made by the operation remained gaping; its borders projected forward, and were plaited or crimped by the projection of the cartilaginous rings that had been divided, and which

were not covered by any membrane of cicatrisation—the intervening tissue was somewhat thickened.

The trachea was dilated in its antero-posterior diameter at the wound by the separation of the rings, and at the same point it was narrowed in its lateral diameter; but, below this, it was much flattened from front to rear, and the transverse diameter was much increased.

Blackish, indurated bronchial ganglia, surrounded the extremity of the trachea at its bifurcation.

The epiglottis was permanently erect, and curved like a spout. The swelling of the aryteno-epiglottic ligaments was such that the superior opening of the larynx was reduced to the following dimensions,—transversely, four and a half lines; from front to rear, four lines. The two enormous tumours that resulted from this swelling, completely filled the spaces between the postero-lateral portions of the thyroid cartilage and the posterior opening of the larynx; embracing the arytenoid cartilages and adjacent parts,—they extended to the borders of the epiglottis, and even diminished, by their bulk, the antero-posterior diameter of the œsophagus. There was less swelling on the left than on the right side; its character was œdematous; but the deeper and more central parts were somewhat indurated.

The postero-inferior (*little*) horns of the thyroid cartilage were naked, and projecting in the midst of the ulcerated, grayish, indurated, and divided soft parts that surrounded them. This part of the cartilage, for the extent of seven lines, was hard, ossified, and blackish; in a word, necrosed.

From this point to the top of the trachea, there was a large rounded excavation, nine lines in diameter, the borders formed of degenerated tissues, of a grayish black; at the bottom we saw the whole of the posterior part of the cricoid cartilage, naked, ossified, and converted into a blackish rough necrosis, one part of which was already isolated by the effort at elimination; it was contained in a kind of excavation, with solid, but not bony walls, and was a true sequestrum.

The posterior membrane of the trachea, as well as the cellulofibrous external tissue, was much indurated, and three lines thick; the muscular coat constituted the greatest part of the thickening, and presented bundles of fibres, separated by whitish bands, that were lost in the submucous cellular tissue, or in the fibrous substance externally,—they were composed of indurated intermuscular cellular tissue.

The tracheal glands were increased in size and indurated; at the upper part of the organ, where the alteration was greatest, they were even confounded with the induration of the tissues.

All the inner part of the larynx, above the vocal cords, was swelled, and occupied by extensive but superficial ulcerations, giving the part a reticulated aspect. They only occupied the thickness of the mucous membrane. Anteriorly, the vocal cords were

swollen so as to reduce the ventricles to two little dimples, but the posterior half of the cords and ventricles was obliterated by a large ulceration, occupying all the lower third of the aryteno-epiglottic ligaments, and extending to the inferior border of the cricoid cartilage, being sixteen lines in its vertical and thirteen in its transverse diameters. The bottom of this deep, irregular, ulcerated surface, presented at its upper part some shreds of blackish and hardened tissue; below, there was a large excavation, in which were seen necrosed fragments of the cricoid cartilage. To the right, it was not so deep, and seemed only formed by the decomposition of the soft parts around the ossified and necrosed cartilage. The sequestrum was found to the left of this excavation, where the walls were shining, resistant, and cartilaginous in their characters.

Below the anterior part of the superior vocal cords, the mucous membrane was covered with patches of little superficial ulcerations.

Similar alterations were also observed at the upper part of the trachea, around the wound of the operation.

OBSERVATION XXII. bis.

Frequent catarrhs.—Aphonia.—Inspiration of alum.—Sulphuretted draughts.—Melioration.—Return of the symptoms.—Touching the throat with nitrate of silver, no beneficial results.—Rational signs of pulmonary phthisis.

Madame M—— was twenty-nine years old. Her mother had been a victim to the cholera, and her father died, at forty, with catarrh. She has not nursed any of her six children, two of whom died young; one of the others, five years of age, is scrofulous; and two little girls, one three years and the other eleven months old, are rachitic.

The patient has always been subject to colds in the winter. In the month of July, 1835, she took a more violent and more obstinate cold than she had before experienced, and spat blood four or five times, which had not before happened.

On the 26th of August, she was in the following state:—The menstrual discharge had been suspended for three months; fatiguing cough, especially at night; almost deprived of sleep; viscid, opaque sputa, adhering to the vessel; dulness under both clavicles, especially the right.

Respiration not mixed with rhoncus, but the expiratory murmur much stronger than the inspiratory.

Considerable dyspnoea; extreme debility; general pallor.

At the same time that the cough began there was hoarseness, which, within a fortnight, has amounted to complete aphonia; still there is no pain in the larynx, nor difficulty of deglutition. Nothing observed on examining the throat.

Pulse eighty-five. Scarcely any appetite, but digestion good.

Prescription.—Infusion of pectoral flowers; night and morning a pill of a grain of powder of digitalis, to be progressively increased to twelve grains a day.

10th of September. The cough is diminished; the digitalis caused some nausea, and dazzling of the eyes; the urine is more abundant; the general health and aphonia remain the same.

The dose of digitalis was diminished two grains per day.

19th. Some melioration, no nausea, urine abundant; pulse seventy; aphonia continues complete.

Prescription. Inspirations three times a day of the following powder:—

℞. Acet. plumb. crystal. p. i.
Pulv. sacch. cryst. p. vii. M.

Stop the digitalis, which is too depressing.

21st. She complains that the powder caused long and fatiguing fits of coughing. We observed that she had used it too freely, and diminished the quantity one-third, after which there were only a few efforts at coughing which soon ceased; the pulse is sixty; she feels pretty well, though weak; she has always perspired freely; her voice has returned a little; she makes herself heard, and emits the sound with some force.

Draught with half a grain of opium: to drink through the day four coffeecupfuls of the following solution:—

℞. Potass. sulphat. gr. xij.
Aqua destillat. ℥. iv. M.

Each dose to be mixed with half a glass of milk and water.

23d September. Marked melioration; the voice has more resonance, expectoration easy, not much cough, appetite improved. She grows stronger.

Same treatment.

26th. The patient is gaining strength; she sits up part of the day; she sleeps well; the appetite improves; the expectoration preserves its characters; the night sweats continue; the voice is more sonorous and stronger than at our last visit.

29th. She says she feels stronger; her voice is still a little cracked, but nearly natural; she has continued the saturnine inspirations without interruption.

Same prescription.

3d of October. The improvement continues; she sustains her strength; the appetite improves; the cough is less violent and less fatiguing, but she had a considerable hæmoptysis this morning. The night sweats have not ceased.

The same prescription.

8th. Another hæmoptysis, but milder; the same state of progressive melioration; auscultation gives the pure respiratory murmur, but expiration is louder than inspiration; the voice remains as before.

The same prescription, except the inspirations.

11th, 14th, and 17th. Same state, strength increasing, night sweats diminishing, the sputa are less abundant, and more mucous.

Same prescription.

20th. The patient went out yesterday; she feels better; the voice is more harsh.

23d. Some streaks of blood in the sputa; the voice is still harsher; all the functions are well performed; the cough grows less frequent and less fatiguing.

Same prescription.

27th. The aphonia is almost as great as at our first visit.

Same prescription.

30th. Same state; same prescription.

5th of November. More night sweats; expectoration easy; the sputa are more mucous, and less abundant; some fits of coughing which are rather fatiguing; slight fever. She has been out for some days. Considerable oppression, but she can go up stairs; digestion easy; appetite as *good as in health*; almost complete aphonia. We touched the larynx with a solution of one ounce of alum to a pound of water.

The patient said she had been advised to use for several days inhalations of an infusion of elder, which seemed rather to increase than diminish the aphonia.

8th. The same hoarseness and fatiguing cough; night sweats have returned for two days; she complains of their insipid and nauseous odour. The throat was touched with a solution of alum.

Same prescription; draught with half a grain of extract of opium.

12th. Complete aphonia; same general state. The throat was touched with a solution of one part of nitrate of silver and four parts of water.

15th. There was an abundant hæmoptysis yesterday; less night sweats. The nitrate of silver has effected nothing; it is to be renewed.

20th. No change since the 15th. The touching with the solution to be discontinued.

23d. Same state. We applied a cautery to the left arm; continue the solution of the sulphate of potash, and the draught with half a grain of opium.

15th of January, 1836. We had ceased visiting the patient for two months, during which time she had been frequently better and worse. During the last month, the night sweats have recurred with renewed intensity.

The oppression is considerable; the cough fatiguing; expectoration easy, streaked with blood; the pulse small, feeble, frequent, with decided exacerbations in the evening.

We thought we heard gurgling in the summit of the right lung; still, she is full of hope, and has sufficient strength to attend to her daily occupation. The appetite, although diminished, is still pretty

good; the food is well digested, and her voice is somewhat improved.

Prescription. Draught of sulphuret of potassa four grains, water three ounces. In the evening, a julep, with half a grain of opium.

February 1st. Nearly the same state, but the patient has had, during the past week, a dysentery, with violent colic. Hectic fever cannot be mistaken. The appetite diminishes from day to day, the strength fails, and it is easy to prognosticate the termination of this terrible assemblage of symptoms.

It is difficult to assign a place to the laryngeal phthisis, in the order of development. The alteration of the lungs was observed at the same time with that of the larynx, and the patient said the hoarseness and catarrh came simultaneously. At any rate, we have seen that the voice was nearly restored, while the pulmonary disease continued. It seemed checked in its progress, the appetite and strength returned, the night sweats diminished, and the pulse regained its natural standard.

Suddenly the hoarseness returned; it could not be modified by the means employed, and the pulmonary affection assumed renewed activity.

It is easy to see the influence exerted by the affection of the larynx on that of the lungs; which proves, at least, that if the tubercular diathesis had produced primarily a disease of the larynx, it could, in turn, impress pulmonary tubercles with new activity; and, moreover, that we should not neglect treatment of the larynx, even when we attribute the disease to the lungs.

CHAPTER V.

SYMPTOMS.

AFTER describing, in a general manner, the symptoms of laryngeal phthisis, we shall specify the forms and peculiarities of each species; and then endeavour to point out the relations that exist between especial lesions of the larynx and particular series of symptoms. And, in review, we shall mention the diseases that might be confounded with laryngeal phthisis, and show how they differ from it.

General symptoms of laryngeal phthisis.—During the first period of the disease, local symptoms alone claim the physician's attention. The general symptoms are rarely developed, except when acute diseases of the larynx give rise to laryngeal phthisis, or when that assumes a threatening aspect. It is, therefore, the local symptoms that should first attract our whole attention.

A. *Alteration in the quality (timbre) of the voice.*—This is one of the first symptoms that attract attention. At first, it is often a simple want of power; oftener a decided hoarseness. Sometimes continual, at others, recurring only when the larynx has been fatigued, or when the patients have been exposed to a change of temperature.

It is an important fact, that the transition to a colder atmosphere is less prejudicial than the change from cold to warm. This singular result has been repeatedly observed in our patients, and we confess we have been much surprised at it. The voice, also, becomes hoarser, in proportion to the time the patient has been up, so that, on the morning visit, when the patient has just awoke, we have observed the voice much clearer than in the evening. This is probably owing to the larynx having gained some repose during sleep, and becoming fatigued during the day.

Another observation, which seems to have escaped writers, is, that if there be a good appetite for food, the hoarseness is generally very decided, and that it disappears, more or less completely after the meal, but soon returns to the same point as before.

It is not a useless exercise to examine into these minor details, because we may be often deceived in our diagnosis of the state of the larynx, if we are ignorant of these singular changes, and of the causes which produce them.

The menstrual period, also, affects the hoarseness, which is generally greatest at the approach, or passing off of this discharge. Venereal indulgence, also, increases it considerably.

The hoarseness is intermittent in the first stage, but soon becomes continual, and may remain so until the close of the disease, though extinction of the voice often supervenes in the second stage.

It is difficult to describe the approach and symptoms of the hoarseness; though a practised ear recognises some sounds which correspond to peculiar forms of alterations in the larynx. Thus, there are some kinds which convey to the ear a mucous and broken sound, but which show that the column of air has not a free passage; this is what we have called the *mucous* hoarseness: it is heard in simple catarrhs, and when constant, commonly only indicates catarrhal inflammation.

In other cases, the voice is hoarse, uneven, and rough; this we call *stridulous*: it is a bad symptom, as it almost always corresponds to an ulceration, or to vegetations in the larynx.

The aphonia, by which we mean the complete loss of the faculty of speech, comes on in the second stage of the disease, and is a serious symptom, but subordinate to many conditions which modify it.

The aphonia, which comes on suddenly, with an acute disease of the larynx, and continues when the disease has passed into the chronic form, is not nearly so alarming as that which advances progressively.

That which succeeds the *mucous* hoarseness is not so bad as that which follows the *stridulous*, for obvious reasons.

In some patients, the aphonia presents curious varieties. The voice may be completely extinguished in the evening, and merely hoarse in the morning, at the moment when the patient gets up, and immediately after eating. This form may indicate a superficial organic lesion, or simply a catarrhal affection.

The inequality of the voice is a more common phenomenon in laryngeal phthisis than has been commonly supposed, or than the patients themselves believe. When the larynx is diseased, the volume of sound is instinctively diminished, and the emission of air is generally proportioned to the intensity of phonation. But, patients who, in spite of the alteration, wish to give the original force to their voice, find that the want of calibre and strength of the vocal instrument gives rise to unexpected and discordant sounds. We have often noticed this in singers and advocates. Colonel B., who enjoyed a high reputation in the army, furnishes a remarkable instance.

He had a chronic affection of the larynx of two years' standing. In ordinary conversation, his voice offered the *stridulous* hoarseness in a slight degree, but it was perfectly even, and, except its force, it was easily modified for animated discourse. But, when he commanded his regiment, there were such uneven and singular bursts, that nothing short of the greatest respect prevented the officers and soldiers from laughing. The finals, for which the vocal tube had to be largely opened, could not be pronounced without change; thus, the word *lance* was never uttered without the sound being converted into a broken cry.

This has some similarity to what is often observed in youth at the age of puberty; differing in this, that the latter are not hoarse, but have two different *timbres*, and a discordance of the voice.

B. *Cough*.—Does not differ from that observed in most diseases of the thorax: it is generally frequent, and by spells. The sound always corresponds to that of the voice. When there is aphonia, or the *stridulous hoarseness*, it has a peculiar sound, which it is important to have well described.

We have called it *eructant*, because, when the patient coughs, he seems to make a suppressed eructation. This character is always diagnostic of a serious alteration of the larynx.

In a common cough, we may observe that the air is expelled by the action of the diaphragm and expiratory muscles, while it is retained, on the contrary, by the contraction of the glottis; the expulsive effort finally overcomes the resistance, and drives the air through the larynx with a sound which we call "cough."

Now, when the sound, instead of being clear and short, is prolonged and *gulping*, it is because the glottis is unable to move freely, or because deep ulcerations prevent it from closing; which explains why the eructant cough is so bad a symptom.

The difference in frequency is altogether inexplicable. Some are tormented by an incessant cough, so obstinate that they cannot

enjoy a moment's rest, and their food is rejected by the contraction of the expiratory muscles; others, whose autopsy presents the same lesions, have scarcely coughed, and succumbed only under the increasing swelling of the mucous membrane of the larynx, and the consequent asphyxia. The cough is generally calmed by food and drinks during the first stage; but, in the second, aliments pass partially into the larynx, and cause convulsive fits of cough, which nothing will relieve. The frequency of the cough is not nearly so unfavourable a symptom as its hoarseness, and the change in the volume of the voice. Some persons have an obstinate cough for years, while their lungs remain free, and there is no alteration in the larynx: one of our patients, Baron Trémont, is in this situation. He coughs in the most fatiguing manner; the most energetic medicines afford him no relief; but his voice remains clear, and nothing indicates tubercles of the lungs, or ulceration of the larynx.

C. Signs furnished by the expectoration.—The expectoration in simple laryngeal phthisis furnishes negative rather than positive signs. It is commonly purely mucous, transparent, and not very tenacious; sometimes very abundant, and a simple mucous secretion (*phlegmorrhagie*;) sometimes less copious, when the matter is more thickened.

When there is an ulceration, the expectoration, without losing the characters already described, offers some peculiarities. Little puriform masses, often mixed with streaks of blood, and even quite bloody, are expectorated, without effort, rather by an attempt to clear the throat than by a cough. We shall hereafter see the diagnostic value of the abundance of puriform expectoration.

D. Pain.—In more than half the cases of laryngeal phthisis there is no pain from the beginning to the end of the attack. It is even remarkable, that they who complained a little at the commencement of the disease, when the phlegmasia was acute, did not suffer at all when the mucous membrane and the cartilages of the larynx were nearly destroyed by ulceration or necrosis.

In a few, there is some pain in the larynx, especially at the origin of the trachea; it is rather a sensation of smarting, which we have never found very distressing to the patients. On the contrary, almost all suffer acutely when they swallow, and patients tell us they feel no pain in speaking or breathing, but when they swallow, and therefore their disease must be in the pharynx only. An examination of the pharynx shows nothing which could explain the symptoms; and if we have an opportunity of making autopsic examinations of the organs of voice, we find considerable organic alterations. How, then, shall we explain this want of correspondence between the anatomical lesions and the symptoms? We think it may be easily done. What parts of the larynx are ordinarily most affected? By turning to the chapter on pathological anatomy, it will be seen that, in ulceration, caries, or necrosis, the mucous

membrane, which covers the epiglottis, the aryteno-epiglottidean ligaments, and the arytenoid cartilages, is almost always the seat of inflammatory engorgement. Now, this forms the anterior part of the pharynx, and no effort of deglutition can be made without the mass of food being pressed against these inflamed and often ulcerated tissues.

When, on the contrary, the front part of the larynx is touched through the skin, the inflamed mucous membrane is protected by the hyoid bone and thyroid cartilage, and, consequently, does not receive impressions of pain, unless we indent the cartilages, or move them considerably: add to this the fact, that the membrane at the upper opening of the larynx is endued with extreme sensibility, while that lining the organ has very little:—we have satisfied ourselves of this by experiments made when we have been obliged to perform tracheotomy.

E. *Signs obtained by inspection.*—By opening the patient's mouth widely, and depressing the tongue with the handle of a crooked spoon, so as to bring the base of the organ well forward, the veil of the palate, the uvula, the tonsils, and the bottom of the pharynx are brought into view. It is important to ascertain the condition of these parts, especially when we have syphilitic laryngeal phthisis. The state of the uvula, also, deserves especial attention, because the procidence of this organ may sometimes cause serious inflammatory symptoms in the larynx.

But the exploration of the epiglottis is of extreme importance, as we have before remarked: although this organ belongs to the tongue, its pathological relations require it to be considered as an appendix to the larynx. Pathological anatomy shows us, indeed, that the larynx is rarely much diseased, without the epiglottis partaking in the affection.

But there are few patients in whom we can see the epiglottis: we have met but two, in whom the throat and the tongue were so formed that we could see the whole of its upper surface. By making the patient utter a cry during the examination, the epiglottis may be seen starting forward at every expiration. In these two patients, whose disease was not far advanced, the mucous membrane was of a cherry red, and decidedly thickened. It may be inferred that the aryteno-epiglottic ligaments and the lining of the larynx were in the same condition.

It would, doubtless, be very important to be enabled to examine the larynx by means analogous to those furnished by the speculum. Some years ago we endeavoured to construct a *speculum laryngis*. M. Selligie, a very ingenious mechanic, himself a sufferer from laryngeal phthisis, of which he has been completely cured, constructed for his attending physician, a speculum formed of two tubes, one of which conveyed light to the part, while the other returned the image of the glottis, reflected in a mirror at the guttural extremity of the instrument. M. Sanson, cutler, made us a speculum on the principle of that just described. This instrument is

of difficult application, and there is not one patient in ten who can bear its introduction. Indeed, its volume fills the space comprised between the free border of the veil of the palate and the upper surface of the tongue. When placed in the mouth, it provokes such uncontrollable starts, (*haut le corps*), that it is necessary to remove it immediately: if it touch the bottom of the gullet, which is almost sure to happen, the pharynx contracts convulsively, and with such energy as to force the instrument into the mouth.

In the most favourable case, when the instrument can be retained in the isthmus of the gullet, the inevitable constriction of the pharynx still prevents our seeing the deeply-seated parts.

There is another difficulty, which is enough in itself, to prevent our using this instrument. The epiglottis covers the upper part of the larynx so completely as to prevent the possibility of obtaining a reflection of the parts in a mirror; and further, the light introduced by the instrument must fall upon the upper or lingual face of the epiglottis, and, consequently, casts its shadow precisely on the larynx, and thus hides it from our view. Bennati was, therefore, mistaken, when he pretended to have seen the glottis with the speculum of Selligie; he generally saw only the lingual surface of the epiglottis, and very rarely the superior opening of the larynx, and that only when the accidental elevation of the epiglottis permitted.

The glottis is so deeply and peculiarly situated that it is impossible to explore it with the speculum even in the dead subject, much less upon the living, especially when we consider the convulsive effort that attends its introduction, even in those who have been most habituated to it.

We have never observed swelling of the anterior region of the neck in simple laryngeal phthisis; this is owing to the mucous membrane being separated from the subcutaneous cellular tissue by the whole thickness of the cartilages. It is remarkable that even when there is considerable necrosis or caries of the cartilages, there is seldom any external tumefaction which would lead us to suspect such serious disorders.

We have only once seen a tumour point between the cricoid and thyroid cartilages; this was almost insensible at first, but coincided with decided laryngeal phthisis. It was necessary to perform tracheotomy to prevent asphyxia, and we afterwards saw the tumour developed as an enormous cancer. Obs. XVIII.

F. *Signs obtained by touch*.—In pressing the larynx a crepitation may sometimes be perceived, which has been mentioned by some authors, especially by M. Laignelet, as a sign of laryngeal phthisis.

This sign at first deceived us, thinking it was produced by the rubbing of the necrosed portions against one another. But experience has taught us that it is most frequently found when the larynx is perfectly healthy; hence it loses its value as a diagnostic. Still it should not be neglected, but we must pay great attention to dis-

tinguish whether the crepitation be produced by the friction of the cartilages against the vertebral column, or whether it result from the grating of portions of cartilage that have been separated from each other by caries or necrosis. In the latter case the noise would probably be drier, and might be produced by squeezing the larynx; while in the former, it is never hard, except when the whole organ is moved. We confess we have never distinctly heard the crepitation resulting from the pathological state of the larynx.

As for touching by the mouth, which is advised in almost all works on œdematous laryngeal angina, we may observe, that the exploration of the glottis is physically impossible, as the finger cannot be introduced into the larynx. The examination must be confined to the epiglottis and upper part of the larynx.

But this exploration is attended with more difficulty than is supposed by those who theoretically recommend it without having practised it on many subjects. It is far from being so simple as touching the neck of the uterus; as soon as the finger has reached the base of the tongue and has merely touched the epiglottis, there is so energetic and general a spasm induced, that the finger can remain in contact but a second or two, so that we cannot thus obtain much information, and can only detect great alterations, such as vegetations or tumours. We cannot by this means ascertain the existence of ulceration in the aryteno-epiglottic ligaments;—at least, we have never been able to do it, although accustomed to this mode of examination.

We read with astonishment what some authors tell us in their writings upon œdematous laryngeal angina; when they say it is very easy to recognise this serious disease by the touch. We esteem it a very difficult, if not impossible diagnostic means, for the reasons already stated.

Touch is, therefore, rarely applicable in our diagnosis of diseases of the larynx.

G. Signs furnished by respiration.—These are among the most important next to the signs furnished by the voice. In the first period of laryngeal phthisis, the respiration is not generally disturbed, except under peculiar circumstances, and when the patient takes violent exercise, in which case the inspiratory sound is a little braying; nothing of the kind is observed in expiration. If by chance in the course or at the commencement of the first period there should suddenly occur an increase of laryngeal inflammation, then symptoms of acute croup will be manifested; but this is an exceptional case, and in proportion to the progress of the disease will be the increase of oppression, which may be owing to two causes.

If the disease of the larynx have induced consumption by the means we shall explain, or if there exist simultaneously pulmonary tubercles,—a powerful cause of laryngeal phthisis, the patient will have shortness of breath and panting on the least exercise, and sometimes even when in a state of repose. In this case

the oppression does not differ from that observed in cases of debility and other forms of phthisis. But there is another important form of dyspnœa,—that which accompanies narrowing of the larynx. This has peculiar characters, and we shall endeavour to describe its form and course.

When the disease has been of long standing, and the obstruction begins to attain considerable age, the patients who had suffered mere panting (*anhélation*) accompanying their debility, begin to experience what they call fits of asthma; at first, these occur in the latter part of the night, sometimes they are awakened four or five nights successively by paroxysms which increase in force. During the day they are better, but have an unusual difficulty of respiration, especially when they take violent exercise, or ascend a stair.

After a while they cannot lie in bed, but remain seated and propped up with pillows. They have similar attacks during the day, and from this time the inspiration is hissing and respiration is prolonged and braying.

In a few days, such violent paroxysms come on, that the sense of impending suffocation causes the patient the deepest anxiety; the fits pass off, leaving continued orthopnœa. More violent and more frequent paroxysms follow, until the patient finally perishes from suffocation.

These fits are truly frightful; with livid face, open mouth, expanded nostrils, suffused and projecting eyes, and streaming with perspiration, the patient rapidly paces his chamber, and occasionally lays hold of objects that he may breathe more easily; sometimes the head is inclined upon the breast, but more frequently reversed; when, at last, overcome with fatigue, he sits down for an instant, soon to get up again. He tears all covering from his head, neck, and chest, and exposes himself eagerly to the cold air at the window, which he throws up with a sort of transport.

Inspiration is hissing, short, and executed by the whole of the inspiratory muscles; but expiration, although less braying, is long, and as laborious as inspiration. Expiration is generally passive, but in these cases it is quite as active as inspiration.

At last the patient falls into profound depression; respiration is more frequent, shorter, and apparently easier; the breath is not warm; the whole body grows cold; the face changes from livid to pale, and is glossy; the eyes grow dim, and death occurs in a sort of calm.

The time from the first fit of orthopnœa until death is generally fifteen to twenty days; the fits begin to recur more than once a day about five days before death. To this, however, there are numerous exceptions. Sometimes a paroxysm occurs in the course of the disease, which proves almost immediately fatal. We will state two cases of this character; the first was noted by M. Marjolin and ourselves; the second by Morgagni.

OBSERVATION XXIII.

Forty-two years of age—Previous good health—First symptoms in the larynx—Sudden attack of suffocative angina—Voice hoarse, almost extinguished—Progressive swelling of the lips of the glottis—Threatened asphyxia—Crude pulmonary tubercles.

Dr. C. of Calais, came to Paris, in the month of October, 1835, to consult M. Marjolin, who asked us to see the case with him.

The patient was 42 years old, and had led a very busy and laborious life; he had always enjoyed good health. In March, 1835, he began to have some dry cough, which became more frequent, but was still unaccompanied with expectoration. There was soon some difficulty of respiration, which did not prevent him from making thirty or forty professional visits every day.

Last August, he was taken *in the street, one morning, with a fit of suffocation, which increased so rapidly that he was unable to proceed.* When bled, he breathed more easily, and was taken home, where he was bled again, and leeches were applied, followed by revulsives.

After fifteen days he was somewhat relieved, and returned to his business. He still had fits of dry, rough, hoarse cough, and shortness of breath. He was soon unable to go up stairs without suffering great inconvenience.

When we saw him there was considerable alteration of the features; he says he has been greatly emaciated since he was taken. Expiration was easy; inspiration laborious and hissing; the cough had precisely the sound of a hoarse eructation (*rot enrroué.*)

We made him read; the timbre of his voice was hoarse and rough; when he took breath, after reading a passage, the inspiratory sound seemed distant, and accompanied with a decided hissing.

We carefully examined the lungs, and found manifest dulness at the summit of the left. Bellows' sound on expiration; no pulmonary expansion at this point; some moist ronchus.

There could be no doubt as to the diagnosis; pulmonary tubercles were evidently present, but scarcely any had been softened, as he had no expectoration; and still the larynx was so much diseased that he had been threatened with asphyxia, and the oppression continued to make constant progress.

We merely advised him to use simple means, and in two days he set out for Calais.

A fortnight had barely elapsed, when we heard that he had another attack of suffocation, which resisted the most energetic measures.

We must mention another case (No. 49.) that of M. P. who had been for several months in a state of constant orthopnœa, from which he recovered: though for a long time we thought tracheotomy would be our only resource. The cases of Madame **** (Obs. 49 bis.) and

of Miss Basinet (No. 49 ter.) were of a similar character, and all were attacked with laryngeal angina, presumed to be syphilitic.

The progress and order of these symptoms are the more important, as by them alone the physician can judge of the propriety of an operation.

Indeed he must know what is the usual term of the period of dyspnœa, and he should know exactly what are the signs of approaching dissolution, that he may hold himself in readiness to perform tracheotomy, and not practise it sooner or later than necessary. When on the subject of treatment, we shall specify when and how it should be performed.

Let us now recur to the respiration, and the forms it presents in the last period of the malady.

Bayle and M. Thuillier have particularly insisted, that when the aryteno-epiglottic ligaments were œdematous, inspiration was more difficult than expiration; and they have made this an essential character. We must say, that although aware of the value they attached to this symptom, and seeking it with much care and attention, we have never been able to meet with it.

It is true that there is a decided hissing during the inspiration, and that this is not observed in the expiration; but the same sound may be observed in all cases where the larynx is narrowed, at any part or in any way; because, in the inspiratory effort, the air traverses the larynx with double velocity, as may be readily ascertained by counting the precise period of the two movements, by the second hand of a watch; it follows, that the increased velocity must produce a much louder noise than the gentle and slow expiratory movement. The difficulty is not dependent upon the free border of the œdematous ligaments falling into the larynx during inspiration, and thus diminishing the capacity of the glottis. This ingulfing of the superior border of the larynx is not so easy as has been supposed. Indeed, in inflammatory œdema—and we have shown that this disease is nearly always inflammatory—the consistence of the mucous membrane, and especially of the sub-mucous cellular tissue, is not that of flaccidity, but generally of extreme tension.

In the dead subject, it is true that these œdematous parts are sometimes so flaccid that they quiver, and might be made to obey the pressure of the inspired air; but this is a very rare circumstance, and we have yet to learn that it is any thing more than an effect of decomposition, or that it does not result from the blood of the engorged parts leaving them, and in that way producing the flaccid condition, which did not exist during life. The same phenomenon may be observed in other tissues, which were tunefied and resisting previous to death, but sunken and flaccid afterwards.

We must now turn to the great question of intermissions in the fits, and in the spasms of the bronchia.

Autopsy shows us a fact, which will not explain the symptoms, to wit, incomplete obliteration of the larynx. Careful observers

find that the glottis is never entirely closed, and that there is always a passage for the air. Hence the conclusion has been drawn that there had been a spasm of the bronchia, complicated with the disease of the larynx, which was the final cause of death. This idea appeared the more plausible, because intermissions had been observed in the paroxysms.

In regard to the anatomical fact, cited by the partisans of this idea, we should first say, that the swelling of the mucous membrane, though considerable during life, diminishes after death; and consequently the opening of the glottis at the autopsic examination may be larger than it had really been while the patient lived. But, admitting that the glottis had the same capacity during life, still death was caused by want of sufficient air—if not by *asphyxia*, in the rigorous sense of the term.

It is absurd to suppose that the epiglottis could be completely closed during life, for the occlusion would not bring on death by slow asphyxia, such as we observe in croup and laryngeal phthisis, but it would cause immediate asphyxia in the space of one or two minutes. Hence the passage of air must have been free until a certain point. It is not the same with insufficient respiration. If the glottis have a capacity represented by two, instead of a capacity equal to four, and if, for the proper aeration of the blood, the air should bear a proportion to the natural dimensions of the glottis, is it not evident, that with this diminished capacity, the lungs will receive only half as much air as is necessary for sanguification?

On this hypothesis the venous blood will not be completely arterialed, and the patient will be in the same predicament as the animal upon which Bichat experimented, when the blood flowed from the carotids of a bright vermilion if the trachea was left open, brownish when half closed, and black when the air was excluded: thus, when from any cause the larynx is half closed, the blood assumes the character of that in the animal which did not breathe a sufficient quantity of air, and it must follow that if asphyxia ensue slowly, it is no less a real asphyxia.

It is easy to make analogous experiments on ourselves. Thus, if you breathe through a tube equal in capacity to one of the nostrils, respiration will be found to go on comfortably, and the functions will be well performed. But if you take a quill, respiration will soon become laborious, and at last true orthopnœa and a sense of suffocation will supervene.

Considering the influence exerted by the blood on the nerves and nervous centres, and their effects upon respiration, we may understand all the spasmodic phenomena, and all the nervous symptoms, and we shall comprehend the intermission, as being like that observed in most neuroses; so that we need not have recourse to spasms of the bronchia, which no one has ever seen. They who have attempted to explain asphyxia by spasm, have looked for some anatomical element in these tubes which could account for it. Muscles have been demonstrated, and we have the

high authority of Reisseissen and Cruveilhier, that the bronchia are semi-cartilaginous and semi-muscular.

We admit, that with the aid of the magnifying glass and the finest instruments fibres are found in the bronchia, which in their fascicular arrangements, bear a very close resemblance to membranous muscles, such as those of the intestines. But mere anatomical resemblance is not all that is wanting, especially as it is seated rather in the colour than the texture : it must be a functional resemblance, which our experiments have failed to demonstrate.

If the bronchia were provided with muscles of organic life, they ought to be contractile ; and this contractility should be manifested by motion, as it is in all muscles of the same class.

The following experiment seems to show the non-existence of contractile fibres. We have had several horses killed by a sudden blow on the head, and immediately opened their abdomens ; then by a large and rapid incision, we detached the diaphragm, and removed the trachea, the lungs, and the heart. With long buttoned scissors we cut the principal divisions of the bronchia, and stimulated them in every way, in order to excite muscular movements. But we have never seen the slightest contraction in any of our various experiments, whilst the heart, the muscles of the life of relation, the intestines, and the bladder, long continued to offer evident signs of this contractility. If it be objected that the bronchial muscular coat is endowed with less energy, and therefore soon loses its function, we answer that in the same animal the muscles which have most energy are the first to lose their contractility ; thus, death begins in the muscles of the life of relation, then in the heart, and in the heart, first the left side, then the right ventricle, and last the right auricle. The digestive tube next parts with its vitality, and of this apparatus, the œsophagus before the intestines.

If we study these phenomena in other classes of the vertebrata, we shall find that birds, which seem endowed with the most energetic external life, lose their muscular excitability very rapidly after death ; then come the mammalia, which preserve it rather longer ; next in order, reptiles, in which it remains a long time after apparent death ; and finally, fish,—the heart of an eel has been seen contracting twenty-four and even thirty-six hours after death.

If from the vertebrata we descend to insects, we shall see that some of them preserve their muscularity for an extraordinary length of time ; the head of a decapitated beetle may preserve its power of closing its horns forcibly for four, six, or even eight days.

If, then, the muscular coat of the bronchia possessed any contractile property it would not be extinguished in two or three minutes.

Perhaps it will be said we cannot justly estimate the influence of the nervous system, and that the cessation of the cerebro-spinal influence may suffice to abolish contractility immediately. But this objection, which is absurd, may be solved by a direct and pal-

pable fact. The trachea of a horse may easily be exposed for several inches; if it be then cut, lacerated, or stimulated in any way, it is impossible to perceive the least muscular contractility.

In the numerous operations we have performed upon the trachea, we have never perceived any muscular contractions in its fibres; and when we have passed probangs into the bronchia we have never felt the whalebone clasped by the contraction of the bronchia, even when the sponges were soaked with very irritating fluids.

How can we admit the spasm of the bronchia in the face of all these facts? Why should we bend all analogous laws of anatomy and pathology to explain phenomena that are rendered perfectly clear by the partial occlusion of the larynx?

Further, if this orthopnœa were caused by spasm of the bronchia, why does tracheotomy afford instant relief? An examination of the simplest physical laws will show more clearly the slender basis of this theory of spasm.

In the orthopnœa, when the inspiratory effort creates a tendency to vacuum in the thorax, the pressure of the external air is such that the lower part of the sternum is pressed in, and nearly touches the vertebral column. But, we ask, if the air entered the chest freely, what an immense energy there must be in the spasmodic contraction of the bronchia to resist the pressure of the atmosphere? and this in a muscular tissue, in which contractility has never been demonstrated!

This explanation has invaded almost every department of our science. A surgeon experiences a sudden difficulty when introducing the tube of Anel's syringe, and explains it at once by the intervention of spasm, rather than by a simple sanguine congestion, caused by the irritation of the instrument. It might as well be said that the nasal fossæ, those bony canals, endued with a delicate mucous membrane, were affected with spasm, when, without appreciable cause, and without the possibility of the secretion of mucus, and simply by a sudden swelling of the olfactory membrane, stoppage of the head, and impossibility of breathing through the nostrils, suddenly occur.

Again: why should we refer to spasm, when it is so easy to explain the symptoms by the swelling of the mucous membrane? But, it will be asked, why should these singular intermissions occur, if the disease be not nervous, but depend upon a fixed, immovable organic lesion?

We answer, by referring to a law of our organism, a law derived from facts. A cancer is immovable, the pains are intermittent; a calculus remains in the bladder, though the symptoms are not constant. Intestinal inflammation is ever present in dysentery; the colic occurs at long intervals. The product of conception remains in the uterus during parturition, but the pains are intermittent. The collection in a hernial sac constantly strangles the intestine, while the vomiting, the syncopes, and the colics are paroxysmal. There is undoubtedly something nervous in all this;

but, while making this concession, we are far from admitting that it is wholly nervous. The reader will pardon our entering into so long a discussion. It was necessary to have our premises well established; and we have endeavoured to clear up a question that has been long and sharply debated, and which is not yet clearly settled in the minds of some eminent men. We have been unwilling, in this examination, to oppose assertion to assertion, but have endeavoured to confirm our views by experiments which seemed to us conclusive.

Signs furnished by the mode of deglutition.—In some patients attacked with this disease, besides the pain in the act of deglutition, already noticed and explained, we find another serious symptom, to which our attention is naturally directed; it is the impossibility of swallowing liquids or food that is minutely divided, and cannot be formed into an alimentary bolus. Most authors attribute this phenomenon to the destruction of the epiglottis, thinking that this organ did not exactly cover the entrance of the larynx, and that, at the moment the food passed the base of the tongue, it necessarily fell into the air passages. The facts which we have observed have taught us nothing respecting the mechanism of this functional difficulty. They have only proved that the destruction of the epiglottis did not prevent some patients swallowing perfectly; and that others, whose epiglottis was untouched, could not execute any movement of deglutition without letting the food enter the larynx. Examples will be found in the two following cases.

OBSERVATION XXIV.

Detmer, a currier, has been a vigorous man, of quick and passionate character, of a bilious temperament, and was born of parents who died young; his father was destroyed suddenly by a fit of mania, to which he was subject; his mother sank under typhoid fever.

The patient, who is in his fortieth year, has been subject to returns of cold every winter for eight or ten years, sometimes accompanied with pleuritic pain: he was treated for pleurisy three years. During his catarrhal affections, he has had five or six attacks of *sore throat*, which yielded readily to simple means.

In December, 1834, he took his wonted *cold*, which, as usual, harassed him very much, though he never spat blood. This cold was accompanied, from the beginning, with sore throat and an obstinate hoarseness, which increased until June, when the tonsils were touched with burnt alum, and he took eight or ten grains of the extract of hemlock each day. These measures proving inefficacious after a week's trial, they were abandoned after eight days, and the left tonsil was incised. The operation was unsuccessful. Insufflations were made with a powder of nitrate of silver. No benefit was derived from this medication.

22d September, 1835. *Present state*: general emaciation, pallor

of the face and skin. Complete aphonia for four months; acute pain in the throat when he swallows either solid or liquid food. The right tonsil is deeply ulcerated, as is the remnant of the left. The bottom of the gullet is of a livid red. The larynx is not the seat of any pain, except when the finger is placed on the right superior border of the thyroid cartilage, where a little eminence is felt, as large as a pin head, which is sensitive under pressure. The respiration is not hissing, and the air seems to enter the lungs without any hindrance. There is considerable dyspnœa whenever the patient takes a few steps; the cough is frequent and fatiguing, with considerable expectoration: some of the sputa are streaked with pus; others viscid, small, opaque, rounded, and swimming in a sort of mucilage. Thorax resonant throughout; gurgling under the clavicles; pervigilium caused by the cough; night sweats on the face and chest; pulse small, frequent, and weak; appetite irregular; digestive functions good; neither diarrhœa nor constipation; urine natural.

23d September. We recommended the patient to enter the Hôtel Dieu, where he was admitted, and placed under the care of M. Guéneau de Mussy, and he was ordered—Gargle of barley water one pound, honey of roses two ounces, and hydrochloric acid twenty drops; gum water, poppy tea, soups.

28th. Same state, perhaps more debility. Same prescription. (The nails are not curved, or, at least, they have not the curvature peculiar to phthisical patients.)

5th of October. Same state; same prescription.

9th. The patient is growing weaker; his features are altered; the abdomen is tumefied and torpid; there has been constipation for eight days. Death occurred at seven in the evening.

Autopsy thirty-nine hours after death.—The lungs are crowded with tubercles in all their stages; there are several caverns at the summits.

Larynx.—Hypertrophy of the follicles at the base of the tongue; their mucous membrane is the seat of flat, irregular ulcerations, especially towards the base of the epiglottis, where it is eroded and puffy; the free border of the epiglottis is partially destroyed, and irregularly slashed; its tissue is altered towards the upper part, so that little yellow, cheesy fragments may be removed by a scalpel handle. The aryteno-epiglottic folds are tumefied, puffy, and present the fretted aspect of old ulcers. The arytenoid cartilages appear partially destroyed. At the base of the left one there is a little deep ulcer of a blackish aspect, from which ichorous pus may be pressed.

All the laryngeal mucous membrane presents a sombre yellow aspect, and a puffiness analogous to that of the aryteno-epiglottic ligaments; the ventricles of the larynx are almost effaced by this thickening. At the upper part of the entering angle, formed by the two plates of the thyroid cartilage, there is an ulceration which has

destroyed the whole thickness of the mucous membrane and cartilage, and its base, which is the external perichondrium, is much softened at this place. The mucous membrane, that covers the laryngeal face of the epiglottis, is almost entirely destroyed; the superior vocal cords are confounded with the investing mucous membrane, and partially transformed into a lardaceous tissue, which creaks under the knife; the arytenoid cartilages are destroyed in their two upper thirds.

Before dissecting the larynx, we pressed the epiglottis down over the glottis, and found that it covered only about two-thirds of the aperture. This is an important observation; *for, on the very morning of his death, Delmer drank, without manifesting any pain in swallowing.*

This observation is very analogous to one noted by M. Louis, in whom the epiglottis was entirely destroyed; but, in his case, deglutition was difficult, and the patient seldom swallowed drinks without rejecting part by the nose.

We now present the history of a patient whose epiglottis was entire, but who rejected both food and drinks by the nose, and let them fall into his larynx.

OBSERVATION XXV.

General eczema, disappearing under proper treatment.—Pain in the larynx.—Hoarseness, dry cough, abundant expectoration, then dysphagia.—Spontaneous melioration.—Reappearance of the symptoms after a cold.—Emaciation.—Complete aphonia.—Repeated fits of dyspnoea.—Tracheotomy.—Death soon after the operation.—Lungs tuberculous.—Ulceration of the larynx and trachea.—Ossification of the cartilages.

M. L., of Dunkirk, aged fifty years, came to Paris, in August, 1835, to consult M. Marjolin. He had lost his voice: a serious affection of the larynx was prognosticated. We were called in, and continued to treat the case conjointly; and, until his death, on the 9th of December, 1835, he submitted to the medications we had prescribed.

M. L. had been captain in the marine, then in the merchant service; he rarely took cold; and neither he nor any of his family had ever experienced symptoms of thoracic disease. He has had three children, neither of whom have been scrofulous or tuberculous.

In the month of August, 1835, shortly after establishing himself at Dunkirk, M. L. had an eruption over his whole body, which, from his description, we suppose to have been eczematous. At first it was confined to the face, and was unsuccessfully treated during a year; finally, in 1826, it disappeared, but a pain in the throat immediately came on, with a sense of oppression, and for some time the patient had a fetid expectoration of bad character. Two blisters, applied to the arms, relieved all the symptoms. In

1828, the disease of the skin yielded, and was only observed to return at distant intervals, and with very mild characters. In 1829 and 1830 he was bled; in 1831 one of the blisters was laid aside. Every thing went on well until July, 1833; this year he had not been bled.

M. L., without any appreciable cause, now began to experience pain in the region of the larynx, with a dry cough. Towards the end of the year, the voice became hoarse, and was accompanied with tenacious expectoration, which was only expelled by considerable effort. From the month of December, 1833, until May, 1834, the patient was confined to his room, and the pain in the larynx was very acute, especially in efforts at deglutition. He could only swallow liquids, and that with great pain; some drops always entered the larynx, and caused an extremely fatiguing cough. In the months of May and June, 1834, the cough and hoarseness increased, and finally there was complete aphonia. But in July, the symptoms were completely removed, the appetite returned, deglutition became easy, the cough ceased almost entirely, the strength returned, and the voice was restored, though hoarse and weak. This state continued until August 1835, when M. L. took a severe cold after exposure. Deglutition immediately became difficult, the cough obstinate and paroxysmal, the expectoration abundant. Three months later he decided to come to Paris, at which time we first saw him.

He is emaciated and pale, although his muscular system is still well developed. His strength has failed considerably within a few months. Cough frequent, and without noise, only producing a hollow and metallic sound; complete aphonia; deglutition of liquids impossible, except by very small quantities, and only when the head is thrown forward. In spite of these precautions, a few drops sometimes enter the larynx, which cause an obstinate and convulsive cough; larynx painful upon pressure. A careful examination of the mouth, that shows the tonsils are a little swollen, and that the mucous membrane of the back part of the pharynx, is covered with hypertrophied follicles.

The most scrupulous examination of the chest, at different times, gave no evidence of organic lesion of the lungs.

There was constantly a greenish, homogeneous expectoration, which is partially diluted in water, and settles to the bottom of the vessel, bearing a strong resemblance to tuberculous matter. This excretion was more abundant than it should have been if it came from the larynx alone.

Moreover, the nails had the peculiar conformation so often associated with tubercle, (*tabidis ungues adunci*), and this sign, conjoined with others, now assumed some importance.

Auscultation was deficient in one sign of immense value, the resonance of the voice. His aphonia prevented our observing its modifications; and as there was much hissing in the larynx, we could not appreciate the various respiratory sounds.

We put the patient on the use of asses' milk and artificial Bonnes waters; and of irritating, followed by narcotic frictions to the front of the larynx; we used insufflations of the subnitrate of bismuth, of aluni, of sugar candy, calomel, and of acetate of lead; we touched the upper part of the larynx with a solution of nitrate of silver. All our endeavours were inefficacious; after remaining three months at Paris, M. L. departed for Dunkirk, where he used milk and Bonnes waters. It should be remembered that he had a cautery on one arm, a blister on the other, and a hemorrhoidal fistula, which suppurated considerably.

So far he has had no fever; about the beginning of November, the pulse was accelerated; the heat of the skin became more decided, and at the same time his appetite diminished, emaciation increased, and there was occasional diarrhœa; in a word, all the symptoms of consumption were manifested. Still, about the 24th of November, he had a fit of slight dyspnœa about three o'clock in the morning. The attack lasted two hours, and he was not otherwise disturbed. He had a slight paroxysm the next day.

26th. He had two less violent attacks.

27th. A much worse fit occurred in the morning, after which the difficulty of respiration continued. The attacks became more protracted and violent from day to day. He could no longer ascend the stairs without feeling suffocated. At night he could only sleep in a sitting posture, and propped up with pillows.

Although in our consultation we had foreseen this aggravation of the symptoms, and had presented the necessity of a surgical operation (tracheotomy,) the family remained free from alarm, and M. L. himself, who wrote to us on the 2d of December, spoke of *a rather greater difficulty of respiration, which was only experienced on going up stairs.*

But on the 5th of December, a fit of suffocation came on with so much violence, about four o'clock in the afternoon, that their family physician, Dr. Delherbe, was called for the first time. He found him in a state of impending asphyxia.

Dr. Delherbe instantly perceived the necessity for tracheotomy, but being unwilling to assume the responsibility of the operation, he wrote, with M. L.'s consent, for us to come with all haste.

We did not receive the letter until the 7th, at two o'clock p. m., started at seven, and were unable to reach Dunkirk until the 9th, at three in the morning, just two hours after M. L. had expired.

M. Delherbe gave us the following details:—The night of the 5th and 6th he was very much disturbed. As it had been observed that the attacks were worse at the close of the day, large doses of sulphate of quinine had been administered. The 6th was passed pretty comfortably; the night of the 6th and 7th was worse than the preceding. On the 7th there were two attacks which were near destroying the patient. The morning of the 8th he was in a horrible situation; from two until seven p. m., there was a little calm, after which suffocation recommenced with new intensity. At

nine, M. L. received the letter we had written from Paris two hours before our departure, by which we announced our arrival at ten o'clock; this hope made the patient more comfortable. At eleven suffocation became so threatening that Dr. Delherbe held himself ready for the operation. At one o'clock on the morning of the 9th, while we were detained at the port of Bergues by the severity of the military regulations, the patient, about to breathe his last, finally authorised M. Delherbe to practise tracheotomy.

This operation was neatly performed. A gum canula was introduced into the artificial opening, but was almost immediately obstructed, and death ensued a few moments after the operation.

At nine o'clock, eight hours after death, we proceeded to make the autopsic examination, assisted by MM. Delherbe and Boudinier. The lungs contained a great many crude tubercular masses; some were suppurated and excavated at the summit of the organ. There were no adhesions, nor traces of pleurisy nor pneumonia. We removed the tongue, pharynx, larynx and trachea. The tonsils were healthy; the tongue was *enormously tumefied*. At the base of this organ, on the sides of the epiglottis, the mucous crypts were larger and more rounded than natural.

Examining the posterior part of the larynx, externally, we found the epiglottis erect, swelled, hard, and the submucous cellular tissue œdematous and hard, as in the œdema of new-born infants. It looked like adipocire. The colour of the mucous membrane was rosy white. The epiglottis was curved towards its inferior face.

On the edge of the right aryteno-epiglottic ligament there were superficial ulcerations, continuous with those within the larynx.

All the lining mucous membrane of the larynx was ulcerated and scattered over with prominent pimples. The ventricles were scarcely perceptible, and only marked by an uneven line. Probing these ulcerations with the bistoury, prominent bony particles were found, which checked the instrument.

There were also numerous superficial ulcerations along the trachea. The mucous membrane was decidedly swollen, and of a diffuse rose colour. There were many points of ossification in the cartilaginous rings, sometimes opposite the ulcerations and sometimes separate from them.

After having the parts delineated by M. Chazal, we boiled them, the better to examine the cartilages. The epiglottis was not altered; the thyroid was completely ossified posteriorly and inferiorly, cartilaginous above and before, but friable, the cartilaginous insensibly mingling with the ossified parts. Anteriorly, and on the left side, the tissue, which remained cartilaginous, yielded under the least pressure, and was raised by fragments with the submucous cellular tissue.

The bony asperities, which we have mentioned in the midst of the ulcerations on the internal surface of the larynx, were intimately united with the cellular tissue, in the midst of which they seemed to take their origin, rather appertaining to the perichondrium than to the thyroid cartilage.

The cricoid cartilage was completely ossified, except its lower border, and in front; so that the ring was closed anteriorly by an isthmus of cartilaginous friable tissue. The parts which remained cartilaginous were locked between the bony plates of the ossified parts, and after boiling they separated just like epiphyses, and left an uneven and rough indenture.

Many of the tracheal cartilages were completely ossified.

Bonnet regarded scirrhus induration of the epiglottis as the cause of this extreme difficulty of deglutition. *Epiglottidem adeò quandoque induratum deprehendi, ut non solum, loquelæ abolitionem inferat, verum etiam non nisi frustra magna deglutire ægrum posse efficiat. Potus et omnia quæ cochleari exhibentur, tracheam intrant, rigidiore ab epiglottide non satis clausam. (Sepulcretum, lib. 3, sect. 4, Obs. VI.)*

This opinion appears to us quite as admissible as that which attributes the difficulty of deglutition to destruction of the whole or part of the epiglottis.

The symptoms enumerated by M. Louis are as follows:—Fixed pain in the upper part of the thyroid cartilage or immediately above it; difficulty of deglutition and rejection of drinks by the nose, the pharynx and tonsils being perfectly healthy.

These signs, collected by M. Louis from eighteen patients affected with ulcerations of the epiglottis, are sometimes incorrect, as we have proved, since they may all be present without our finding ulceration of the epiglottis, (Obs. 25,) and all may be wanting when the epiglottis is destroyed (Obs. 24.)

We regret exceedingly that so exact and minute an observer as M. Louis should have made no observations upon the introduction of food into the larynx, confining himself to its rejection by the nasal fossæ.

In the midst of the uncertainty which exists respecting the causes of food falling into the larynx during the act of deglutition, we shall not attempt to give an explanation of the phenomenon; for it appears to us impossible to refer it to any constant lesion.

Of the differences of symptoms according to the species of laryngeal phthisis.—We have mentioned the general symptoms of simple laryngeal phthisis; with a few exceptions they are found in all the species.

The tone of the voice, the cough, the local swelling, the mode of respiration and deglutition, are precisely the same, whatever may be the species, because they depend upon an organic modification common to all—to wit: the inflammation, ulceration, and narrowing of the larynx. But each species also offers some peculiar symptoms which it is interesting to observe, and which we shall pass in rapid review.

Syphilitic laryngeal phthisis.—When speaking of pain, we said there was very little in simple laryngeal phthisis. In this form it is sometimes very acute, especially in the act of deglutition, rather than when you press upon the upper part of the larynx. This

pain is explained by the pathological condition of the pharynx and tonsils, which are generally covered with ulcers, or are deeply furrowed with cicatrices; the veil of the palate is sometimes ulcerated. There is always a considerable erythema of the mucous membrane, and frequently more or less swelling of the submucous cellular tissue. There is sometimes œdema of the uvula and of the anterior pillars of the veil of the palate. *Touching*, which we have shown to be so unimportant in our diagnosis of simple laryngeal phthisis, is here often of great importance, and should never be neglected. Thus, in the case of M. P. (No. 49,) the introduction of the finger into the back of the mouth proved the existence of enormous syphilitic vegetations on the pharynx and over the superior opening of the larynx itself.

It is true that when the syphilitic ulceration is seated in the ventricles alone, or within the larynx, it cannot be distinguished by any peculiar sign, and can only be recognised by the previous history, and the collateral symptoms that may exist on the skin, the bones, &c.

The course of the syphilitic form is different from that of simple laryngeal phthisis. In the latter, the disease generally begins in the larynx or trachea, whilst in most cases the former is an extension of the lesions of the pharynx or nasal fossæ, so common in syphilis. It is therefore necessary to pay especial attention to this peculiarity; for experience shows that the larynx is ordinarily the seat of lesions analogous to those previously observed in the throat. Thus a syphilitic erythema of the nasal fossæ and pharynx is followed by laryngitis without ulceration; and, on the contrary, we may presume that syphilitic ulcers and necrosis exist in the larynx when an analogous lesion has been observed in the nasal fossæ, and when the tonsils and veil of the palate have been deeply ulcerated.

Tubercular laryngeal phthisis.—We admit the existence of this form whenever there is, at the same time, confirmed pulmonary phthisis. Hence we find in this species the signs of pulmonary consumption added to those of simple laryngitis. It is, then, by stethoscopic signs, by the nature and abundance of the expectoration, and by the rapidity of the emaciation, that we distinguish this species. In another place we shall state the manner in which we conceive simple laryngeal phthisis may give rise to tubercular pulmonary consumption.

When tubercles are once developed, the laryngeal affections will progress more rapidly. Indeed, in tuberculous patients we find the simplest phlegmasiæ have a fatal tendency to be aggravated, and to take on unmanageable characters. Thus, the slightest sprain occasionally becomes the cause of a white swelling, and the mildest affection of the larynx may occasionally cause laryngeal phthisis.

Hence, when making our prognosis of the diseases of this organ, we should pay the closest attention to the slightest signs of pulmonary tuberculation, and not anticipate a cure, when we can only

palliate the disease temporarily. The case of M. L. of Dunkirk, (No. 25,) is demonstrative of this. The following history is analogous; in it we obtained only an apparent cure.

OBSERVATION XXVI.

Tuberculous laryngeal phthisis at the onset—Thirty-seven years old—Born of a consumptive mother—Laryngeal hemorrhage—Hoarseness—Signs of tubercle—Apparent cure.

M. F. S., a lawyer, in the month of March, 1833, experienced an acute pain in the region of the larynx; for eight days there were fever and bloody sputa, which evidently came from the larynx. Active antiphlogistic measures were employed, and all the symptoms yielded in a week. The voice was at first a little hoarse, but became perfectly restored. M. S. occasionally took colds, but they never lasted more than three or four days.

He got along very well until the beginning of 1835, when a slight, dry cough came on, and a sense of pricking in the larynx. The voice was clear and sonorous. In June, 1835, the same symptoms as those of 1833 were renewed, after a violent diarrhœa, and lasted four days; they reappeared after a fortnight, but with less intensity. As the bloody sputa continued, M. S. came to Paris for our advice.

The voice was very weak and hoarse, the respiration rather short. The region of the larynx was rather painful, conveying the sensation of heat and pricking. Two or three times a day the patient experienced an obstruction in the larynx, and by *hawking*, rather than by a cough, he raised a semi-bloody, semi-purulent sputum, the size of a five-sous piece, which was all that he expectorated.

We called MM. Andral and Louis in consultation, who examined the chest carefully; there was a little dulness in the right posterior region, and resonance of the voice, without any sign of tubercular softening.

Still we decided that he had tubercles in the lungs, and feared that laryngeal ulcerations would soon be developed if they did not already exist. The patient was ordered to maintain silence, to drink asses' milk and artificial Bonnes waters during the autumn, to insufflate the subnitrate of bismuth, and afterwards a powder of one part of acetate of lead to seven parts of powdered sugar candy.

These measures were carefully followed, and we recently received a letter from M. S. in which he mentions his complete recovery; we do not believe that the tubercles were cured, but they do not manifest themselves by any symptoms.

Here we have evidently cured a laryngeal phthisis, which was tuberculous, in the commencement, and we have done in the larynx what is so often effected in the intestine. Indeed, when pulmonary tubercle has not advanced too far, it is easy to cure the diarrhœa

which depends upon incipient alteration of the glands of Peyer and Bruner. But when the tubercular cachexia has made any progress, the least irritation of these intestinal crypts immediately acquires an uncontrollable tendency to ulceration.

In the case we have just mentioned, it is probable that were the pulmonary tubercles to become softened, the commencing laryngeal phthisis which we had once so easily cured, would resist all our medications, however energetic and thorough they might be, and that it would go on, with the disease of the lung, to a fatal termination.

Cancerous laryngeal phthisis.—The symptoms of this form do not really differ from those of simple laryngitis; as may be seen by referring to case No. 18. We should suppose from analogy that the character of the pain would be important; but on consulting the only fact of this kind that we have met with, we find that the tumour never caused any lancinating pains, nor did the patient complain of any other difficulty than that inseparable from such a lesion as her case presented.

The presence of the fully developed tumour alone can aid us in the diagnosis, for in the early stages it would be impossible to distinguish it from any other tumour.

In the chapter on the different species, we said we might be justified in making a dartsous laryngeal phthisis—we will adduce our reasons. It is a fact, which cannot have escaped those who have studied the pathology of the larynx, that persons who have long suffered a chronic affection of the Schneiderian mucous membrane, often have phlegmasiæ of the larynx and pharynx, which alternate with the disease of the nose, or appear to be an extension of it. We have quoted a case (No. 44.) Many similar might be presented. But as these chronic phlegmasiæ of the nasal mucous membrane are generally chronic eczema, is it unreasonable to admit something of the same kind in the larynx? We leave our readers to decide the question.

Differential diagnosis.—There are three diseases with which it might be possible to confound laryngeal phthisis;—tracheal phthisis, œdematous laryngeal angina, and asthma.

The first we do not consider separable or distinguishable from laryngeal phthisis, with which it is almost always united, as we have shown in Chapter II.

M. Cayol, who sustained a thesis on *tracheal* phthisis in 1810, thinks, on the contrary, that this disease has characters peculiar to itself, but the symptoms he has indicated are so precisely those of laryngeal phthisis, that it would be utterly impossible to distinguish them. We have his thesis in our hand, and after having attentively revised his observations, we are convinced that the larynx had been superficially examined; our readers will no doubt unite with our opinion when they read of M. Cayol's patients dying generally with fits of *orthopnœa*, having the *larynx healthy*, and in the trachea *ulcerations which did not diminish its calibre*.

Edematous laryngeal angina is in nearly the same predicament. When this affection is acute, it can only be confounded with croup; when chronic, which is most frequently the case, it is oftener one of the terminations of laryngeal phthisis, and, therefore, merely a symptom of this affection. This is not the place to discuss the relations which exist between the two diseases; this important point in pathology will be treated at length in our chapter on terminations.

Asthma.—By this term, we do not mean the habitual difficulty of respiration which is observed in patients with disease of the heart or lungs. It appears impossible to confound this form of dyspnœa with that produced by laryngeal phthisis; we shall, therefore, say nothing about the differential signs. The only asthma about which there can be any doubt, is that singular nervous affection of the respiratory apparatus, characterised by paroxysms of orthopnœa, followed by more or less perfect calm in the respiration.

When you witness two cases, one caused by asthma, the other by narrowing of the larynx, you will be struck with the strong similarity of the phenomena. The attitude, expression, and muscular efforts are all alike; but one pathognomonic sign establishes an immense interval between the two diseases: in asthma, the voice is sonorous; in laryngeal phthisis, it is extinct. Without considering the period of the fit, if we compare the other symptoms, we shall see in what they differ. The oppression of asthma comes on suddenly, without warning, or appreciable cause; after a few hours, it ceases; and as it attacked its victim in the midst of full health, so it leaves him with no other symptom than a little fatigue. These fits of asthma have been preceded and are followed by others of a similar character.

But, in a large majority of cases of laryngeal phthisis, the orthopnœa comes on gradually, and has generally been introduced by a palpable difficulty of respiration, and by an alteration in the volume of the voice. When the paroxysm has ceased, the respiration is far from being clear; and the fits go on increasing in their intensity, until at last the patient reaches such a degree of asphyxia, that death is threatened, or is only averted by a surgical operation.

We, therefore, think it impossible to confound two diseases, whose course and form are so different.

CHAPTER VI.

TERMINATIONS.

§ 1st. Before we explain how simple laryngeal phthisis causes death, it may be well to enquire into the usual termination of consumption.

Death may be produced by tubercular pulmonary consumption;—this proposition, sustained by the highest authorities, appeared so evident, at first sight, that no one has taken the trouble to examine it, and it had almost become an axiom in pathology. We hope, nevertheless, to advance some opinions which have hitherto been considered paradoxical, though they are now beginning to be generally acknowledged and received by the profession.

The phthisis (consumption) would not be truly *pulmonary*, in the strict and literal sense of the term, unless the suppuration of the respiratory organ, its chronic inflammation, and its tubercular softening, had gradually carried the patient through all the stages of marasmus, until life was extinguished, without any other organ of the economy having been attacked.

But this is rarely the case: life is ordinarily destroyed by a host of sympathies, that have been awakened by the pulmonary phlegmasia, or by the absorption of morbid products. And, without speaking of functional lesions, such as the acceleration of the pulse, increase of heat, &c., we have many organic lesions, which, though secondary, are nevertheless often more immediately fatal than the primary affection itself. Thus, the colliquative diarrhœa of consumptives, which is the symptomatic expression of a phlegmasia in the alimentary canal, induces death more rapidly than the most extensive suppuration of softened tubercles. The secondary symptom has here more value than the primary lesion, if we regard only danger.

It being well established, that, in pulmonary phthisis, although the first disorder is evidently in the lungs, death is usually caused by more serious organic lesions foreign to the respiratory apparatus, we think it will be easy to assign the true nosological position of tubercular laryngeal phthisis.

If, indeed, the chronic disease of the larynx have long been the principal affection, it may be considered the cause of death; and, when alterations of other organs, more or less nearly associated with it, are also present, we must not deny the existence of laryngeal phthisis. In this case, the well-established priority of lesions would be our chief reason for naming the disease.

If the lung be first attacked, and if the mesentery and follicles of the intestine afterwards become the seat of disorders, which are more immediately mortal, we should, nevertheless, call the disease *pulmonary phthisis*. If, on the contrary, the tuberculous swellings of the mesenteric ganglia had marked the onset of the attack, and the ulceration of the small intestine had followed; and, finally, in the last stage of existence, pulmonary tubercles had been developed, and softened; we should say, (according to the expression of our predecessors,) that our patient had a *mesenteric phthisis*, upon the same principle that, in the other case, we decided upon *pulmonary phthisis*. For the same reason, when the series of local and general phenomena has clearly commenced in the larynx, and when, while the laryngeal lesion is still progressing, the lungs, the

intestines, and the mesentery present signs of tuberculisation, we should still say that the patient had *laryngeal phthisis*. You may say, if you choose, that he had laryngeal phthisis, then pulmonary phthisis, then tubercular enteritis, then mesenteric atrophy; but, at last, it was laryngeal phthisis.

Nevertheless, we admit there is an immense difference between laryngeal and pulmonary phthisis. This consists less in their cause (for both are considered tuberculous) than in the extent and importance of the diseased organ, and in the number of sympathies either may awaken. It appears that a chronic disease of the larynx would require a long time to cause death by *consumption*; whereas we all know the frightful rapidity with which it occurs in *galloping* consumption, as it is called. We do not wish to assimilate these species, but merely to show their points of contact.

Hitherto we have confined our comparisons to tuberculous affections, and we confess that our reasoning may be rather defective; indeed, tubercle is a general fact in the economy, and if the lungs be most frequently affected, it is no less true that almost all the organs may participate; the same is true of cancer. Hence it follows that the coincidence of lesions in different parts of the body does not by any means prove that there was a necessary connection between the primitive lesion, or rather between the organ first affected, and those which afterwards suffered. When, therefore, tubercles exist simultaneously in the lungs, the larynx, the intestine, the mesenteric ganglions, and in the various parenchymata, we are not bound to say that the patient suffered from *pulmonary* or *laryngeal* phthisis, but that he had a *tubercular phthisis*, which is quite another affair; but custom prevails, and the species of phthisis is named from the organ most *severely* affected; we shall conform to this usage, always observing the order of priority more than that of severity.

From all that has been said it results, that in *tubercular laryngeal phthisis*, death by consumption is less due to the lesion of the larynx itself than to the other accompanying lesions which are rather concomitant than consecutive. In fact this form is only the expression of a general morbid constitution.

Let us study simple laryngeal phthisis and ascertain how it may produce death. We have never seen a single case of chronic disease of the larynx which caused death by consumption; but other practitioners, whose testimony is unimpeachable, have seen what a long acquaintance with the hospitals and an extensive private practice has not exhibited to us. The cases which we have given under Nos. 8, 9, 10, 11, 12, 13, and 14, and which are annexed to the chapter on species, as types of simple laryngeal phthisis, sufficiently prove that the lesion of the larynx may alone produce death by consumption.

But we, as well as our predecessors, have observed chronic diseases of the larynx, causing a fever very like hectic, and producing considerable emaciation and debility; and, if the swelling of the

mucous membrane and the consequent suffocation did at last cause death, it is no less true, that decided consumption had commenced before the orthopnœa occurred. From this degree of consumption to that which characterises confirmed phthisis there is truly but a single step.

But how does death occur in the simple form of laryngeal phthisis? By consulting the cases we have cited it will be seen in an instant, that the hectic, the abundance of expectoration, the violence of the cough, the pervigilium, and finally the various derangements of digestion, have gradually destroyed the patient, while the autopsy discovered nothing to explain these secondary symptoms but the alterations of the larynx. Here we may truly attribute death to *laryngeal phthisis*, in the strictest sense of the word.

But these cases are very rare, as M. Andral¹ has observed.

Under ordinary circumstances, the affection of the larynx, when not far advanced, and when unaccompanied by an obstinate cough, or fever, or oppression, scarcely ever causes emaciation; but when these symptoms occur, the patients soon fall into a bad situation. Dyspnœa advances, and death supervenes on asphyxia. This is the most frequent mode of termination.

Here there is not, properly speaking, any *laryngeal phthisis*, for there is no consumption; but custom prevails, and this name is left attached to the disease, because the patient would have passed gradually through all the stages of consumption, had not his life been destroyed by the obliteration of the air-passages.

It seems difficult indeed, at first sight, to comprehend how a chronic ulcerative phlegmasia of the larynx could by itself bring on consumption. The surface of the mucous membrane is so limited, the suppuration is generally in so small amount, the pains so trifling, the sympathetic relations of the organ of so little importance, that it needs the imposing names we have cited in the chapter on species, to support belief in the existence of simple laryngeal phthisis.

We can readily understand how chronic inflammation, ulceration and suppuration of the kidneys, intestine, bladder, or a large portion of the cellular tissue, might gradually interfere with the circulation, excite febrile reaction and bring on marasmus. But here another circumstance must be taken into the account; the continuance of the cough which fatigues both the lungs and the expiratory muscles, and which prevents the patient's enjoying a moment's rest: the frequently considerable difficulty of deglutition, the impracticability sometimes of swallowing the least portion of food, without being instantly seized with convulsive cough and suffocation; in a word, pervigilium and inanition suffice, we think, to explain the marasmus and death.

Simple laryngeal phthisis, then, generally destroys the patient

¹ Clinique Médicale, tom. ii. p. 220.

differently from the two other forms, or from continuous suppuration in other organs, independent of tubercular lesion.

Pulmonary phthisis is a very frequent termination of laryngeal phthisis.

We have already stated that it often produces serious disorders in organs more or less removed from the lungs; we can suppose that it may itself be provoked by an analogous cause and be consecutive.

We have given some cases which show the justness of this view, and refer the reader to them. (Obs. 23 and 33.)

One of these cases is much more conclusive than the others in favour of this opinion, it is quoted from M. Bulliard.¹ (Obs. 33, bis.)

The subject of this observation, after having been tracheotomised on account of an acute laryngeal angina, wore the canula constantly for fifteen months. Eight months before death, a careful auscultation indicated no tubercles in the lungs, and autopsy showed many that were suppurated; hence it is difficult to believe that the phlegmasia of the larynx did not cause the development of these morbid products.

If we compare this case with that of Mme. Petit, (No. 18, Chap. *Species*,) we shall see the same cause producing a similar result. When this lady was carefully ausculted by M. Louis and ourselves, she presented no symptom of pulmonary tubercle; a canula was worn in the trachea, and besides the cancerous tumour in the larynx, partially softened pulmonary tubercles were found after death.

In these cases the conditions of the patients were very different. One was affected with a simple chronic phlegmasia of the larynx; he was a drunkard and debauched; his profession frequently exposed him to the inclemency of the weather; the other lived in comfortable style, had always led a regular life, and had a cancerous tumour of the larynx. So there was nothing in common between them, except that both wore a silver canula. Still, though in both the lungs appeared sound at first, they were found after death loaded with partially softened tubercles.

The same observations will apply to the case of Mme. Morin; when we first saw this patient, the larynx appeared the exclusive seat of morbid action, and the little hæmoptysis which occurred might well be attributed to the urgency of the cough. The most careful auscultation did not indicate any modification in the resonance of the thorax or in the respiratory sounds. The complexion was good, with considerable embonpoint. Some months later, however, the pulmonary affection broke out with much violence, and the patient died with purulent expectoration, and all the symptoms of pulmonary phthisis.

The following observation appears still more conclusive:—Miss

¹ Journal Hebdomadaire de Médecine, 1827.

Longet, aged thirty-two years, took a violent cold in the winter of 1834-35. There was fever, with emaciation, and an aphonia which lasted six weeks. A well-directed regimen and moderate antiphlogistic treatment quelled the symptoms, and at the end of two months health was perfectly restored. A year afterwards she took cold coming from a ball; the same symptoms were developed; fever, abundant expectoration, and loss of voice. An application of leeches and the continued use of emollients again stopped the fever and expectoration, but the aphonia and cough continued.

Six months afterward, the respiration became hissing and laborous; every thing indicated a considerable narrowing of the larynx. Death by suffocation was threatening; mercurial frictions to the front of the neck stopped the oppression. We then ausculted the patient with care; and M. Louis, called in consultation, examined her himself. We found a little obscurity of the sound, and bronchial respiration anteriorly and posteriorly.

It was evident there were tubercles, but we heard neither gurgling nor moist crepitus; there was not the least expectoration.

This case is precisely analogous to that of a woman who was tracheotomised by M. Fournet, under M. Andral, and who, at her entrance, offered no signs of pulmonary phthisis, but only an oppression which was so great that bronchotomy had to be practised. Some time after the operation, phthisis developed itself, and she died consumptive.

May we say of these patients that the lesion of the lungs was the cause of the laryngeal affection, which had existed long before the former developed itself; when the serious derangements were present in the larynx, and the most careful exploration of the thorax did not indicate the softening of tubercular matter?

These facts would go to support the opinion of Borsieri and Portal, who regarded laryngeal as a frequent cause of pulmonary phthisis. At any rate they are directly opposed to that of M. Louis; who considers the ulcerations of the trachea and larynx caused by the passage of pus, which could not have been the case in the instances just cited, since the tubercles were not softened.

M. Louis considers the irritation of the pus from the lungs, as the very probable cause, but he is not absolutely convinced of it. In the absence of this explanation, so *generally* satisfactory, may we not attribute it to *diathesis*, and admit the simple coincidence of the pulmonary and laryngeal lesions without regarding them as causes one of the other?

We often see a joint become the seat of white swelling, and pulmonary phthisis shortly after developed; in other cases, a chronic diarrhœa persists for several months, owing to the tubercular ulceration of the glands of Peyer, and the lungs remain a long time unaffected. It is generally the tuberculous softening of the lung which continues and the intestinal lesion that follows. To us, these alterations do not appear to be causes of one another, but only the product of the tubercular diathesis, which generally

attacks the lungs first, but which, in some rare instances, affects some other organ, and only attacks the lungs secondarily; and besides, it will be readily understood that there is a more intimate bond of connection between the larynx and lungs than between the latter and any other part of the system.

It is not, then, as Borsieri thought, laryngeal which caused pulmonary phthisis, any more than the pulmonary lesion, which, according to M. Louis, causes the laryngeal disorders. The question is simply, whether the lung or the larynx have been first affected; and this problem is difficult to solve.

Before Laennec discovered auscultation, the opinion of Borsieri necessarily prevailed; indeed the presence of pulmonary tubercles could not be determined until they were far advanced, while all were struck with the symptoms of disease in the larynx. But in our day, the exploration of the chest may be so precise, that the alterations of the lungs are often revealed before the cough, hemoptysis, and purulent expectoration proclaim tubercular phthisis.

It is not every one, however, who can detect the early stages of disease in the parenchyma of the lungs; great practice of auscultation, and constant attendance on the hospitals, are necessary to distinguish these changes in the intensity of the respiratory sounds, and the resonance of the voice, which have so great a diagnostic value. Even where an appreciable alteration in the resonance of a part of the lung, in the respiratory murmur, or in the voice exists, we must not always decide upon the existence of tubercles; but by frequently repeating the examination of the patient, and by watching the progress of the signs furnished by auscultation, we learn to decide with certainty.

The aphonia, the narrowing of the larynx and consequent oppression, are the grand obstacles to auscultation. On one hand, we cannot explore the resonance of the voice, which furnishes such valuable diagnostic means; on the other, the hissing in the larynx so masks the noise of respiration that it becomes impossible to detect the slight changes of which we have been speaking. This we found to be the case with Mr. L. of Dunkirk, whose case we have given in No. 25. The sound was less clear without being obscure, and as this semi-obscurity was observed in the whole chest, it would not serve to decide the relative predominance of the pulmonary lesion (the autopsy, indeed, showed that the lungs were equally loaded with tubercles in their whole extent.) The respiratory sounds disappeared entirely in the midst of the bronchial and laryngeal gurgling, and the complete aphonia did not permit us to examine the resonance of the voice. Still the tubercular pulmonary phthisis was palpable: the abundance of purulent expectoration, the hectic fever, the diarrhœa, the emaciation, and night sweats, all concurred in leading us to this diagnosis, which we could not establish by stethoscopic signs. It was exactly the same with M. Prévot, a relation of Dr. Honoré. He was affected with pulmonary and laryngeal phthisis in the last stages, and neither percussion nor

auscultation enabled us to recognise the presence and softening of tubercles from the same causes which operated in Mr. L. of Dunkirk.

We conclude, 1st, that, in most cases, tubercular pulmonary phthisis is first established, and that the larynx is afterwards affected.

2d. In some rare cases the tubercular lesion commences in the larynx, and only invades the lungs secondarily.

3d. That sometimes both exist and progress simultaneously.

4th. That in this case the lesion sometimes seems to exist exclusively in the larynx because of the predominance of the laryngeal symptoms, and the difficulty of ascertaining the pulmonary lesion by stethoscopic signs.

We have said that marasmus was rarely caused by laryngeal phthisis. Among the causes which induce death before marasmus comes on, we mentioned the swelling of the mucous membrane of the larynx, produced by its ulceration or chronic inflammation.

As this is one of the most frequent and serious causes of death, we shall devote a paragraph to the study of the connections that exist between this swelling of the mucous membrane, which has been made a special disease, and the acute or chronic phlegmasia of the parts which compose the larynx.

§ 2. *The relation which œdematous laryngeal angina bears to laryngeal phthisis.*—Our object, in this paragraph, will be to prove that œdematous laryngeal angina scarcely ever¹ differs in its characters from the inflammatory œdematous laryngeal angina described by authors, and of which Boërhave has left us so faithful an account in the following aphorisms.

Aph. 801. "Si scela laborat pulmonalis fistula, illæsis allis, in internâ membranâ suâ musculosâ tunc oritur ibi tumor, calor, dolor, febris acuta calida, ceterum externa signa nulla; vox acuta, clangosa, sibilans; inspiratio acutè dolens; respiratio parva, frequens, erecta, cum summo molimine; hinc circulatio sanguinis per pulmones difficilis; pulsus mirè et citò vacillans, angustix summiæ; cita mors. Est que hæc una ex iis quæ funestissimæ nec externa dant signa: quò verò propriùs glottidi et epiglottidi malum, eò sanè magis lethale."

Aph. 802. "Si larynx imprimis acutè inflammatur, et sedem habuerit malum in musculo albo glottidis et simul in carnis ei claudendæ inservientibus, oritur dirissima, subito strangulans,

¹ We say *scarcely ever*, because in the numerous examples of diseases of the larynx which have fallen under our own observation, or of which we have read in authors, we have found but one which could fairly be considered as belonging to the œdematous laryngeal angina of Bayle. It is as follows:—A little girl, eight years old, had had scarlatina. Eight days after the close of the disease, she was taken with general anasarca; the face, lips, and mouth were infiltrated, and soon after all the symptoms of an œdematous angina appeared; laxatives and diuretics were actively employed; diaphoresis was established, the urine flowed abundantly, the anasarca disappeared and with it all the symptoms of suffocation.

angina. Signa ut priora (801,) dolor in elevatione laryngis ad deglutitionem ingens, acutus inter loquendum atque vociferandum; vox acutissima, stridula, citissima, cum summis angustiis, mors. Estque hæc, sine signis externis, omnium pessima."

Bayle was the first to trace the history of this serious malady. Bichat¹ speaks of the infiltration of the aryteno-epiglottic ligaments as a fact known to practitioners; could he have referred to the observations reported by Morgagni? for they are the only cases we know of anterior to him.

On the 18th of August, 1808, Bayle read a memoir, to the Society of Medicine, on a disease which he called *œdema of the glottis*, and which he regarded essentially different from inflammatory laryngeal angina.²

In 1815, Thuillier, a student of the Paris faculty, advanced the same opinion in his inaugural thesis; and since that period *œdema of the glottis* has been considered a special disease in our nosography.

It was not until 1825 that M. Bouillaud dared to contradict the opinion of Bayle and Thuillier, and as no remarkable monograph has been published since that time, the question remains unsettled, balanced between isolated cases, which prove the old or the new theory, as their authors were inclined to the one or the other. We think it may not be uninteresting to discuss these two opinions, and hope to throw some light upon the question, as we have more cases than our predecessors, and are perhaps better situated than they were for observing this class of diseases.

Morgagni, as quoted by Bayle and Bouillaud, speaks plainly, in his fourth letter, of alterations in the larynx, which correspond to *œdematous laryngeal angina*. We shall not advert to the case in letter 43, art. 24; there is no doubt the disease was the dropsical or catarrhal angina, which Bøerhaave mentions (Aph. 791,) and we are surprised that this should have escaped both Bayle and Bouillaud. Let us see what Morgagni says of the former, in art. 26, (let. 4,) and of the alterations found at the examination of his throat after death.

"Ore autem denique aperto, primum in conspectum venit tumor nuci juglandi fermè par, qui dexteram palati partem quâ molaris dens erat plurimum vitatus, et exesus cum continente gingivâ occupabat, et pure ex parte cocto turgebat. Porro membrana quâ uvula et contiguæ partes, atque exterior larynx ad extremum usque epiglottidis apicem conteguntur, cum in summo livida erat, tum concisa, innumeras quasi cellulas sub se ostendit, quarum tenues et subrubri

¹ Anatomie Descriptive, Paris, 1823, tom. 2, p. 404.

² We may observe that the name *œdema of the glottis* is inappropriate, not for the reasons advanced by M. Olivier des Brulais, in his inaugural thesis before the Faculty of Medicine of Paris, October 11th, 1835, but because *the glottis is an opening*, and cannot be *œdematous*; he should have said *œdema of the walls of the glottis*. We shall hereafter make use of the expression, *œdematous laryngeal angina*.

parietes quâdam, ut sic dicam, *gelatina*, cellulas complente, distendebantur. Quæ his cellulis suberant, ea quidem sana apparebant; at interior tamen laryngis facies subrubro colore propè glottidem infecta erat, ipsaque glottidis latera quæ ceteroquin albicabant, ut solent, *multa magis quam soleant connivebant.*"

How was it possible that Bayle did not perceive that the tumour of the mouth was the principal disease and cause of all the symptoms? Why did he not recognise, in the livid colour of the epiglottis, and the sanguine injection of the mucous membrane of the larynx, the signs of inflammation in these parts? We are surprised that Bouillaud did not use this case when combating the opinions of Bayle.

When we read the eminent author's memoir, as republished in the Dictionary of Medical Sciences, vol. 18th, we are struck with the number of contradictions it contains.

At page 506 we find, "no one can confound œdematous with inflammatory laryngeal angina, so well described by Boerhaave, § 801; the violence of the fever in the latter disease, and its absence in œdema of the glottis, sufficiently distinguish these two affections which differ in other respects."

At page 507, after saying that œdematous laryngeal angina is either primitive or consecutive, he adds:—"when primitive, it appears to belong to a catarrhal or inflammatory affection of the larynx;" and further on, treating of the causes, he writes:—"they (causes) are all those of *inflammatory* and *catarrhal* diseases *operating on an individual predisposed to an irritation of the larynx.* But what this predisposition is, or how it differs from that which produces inflammatory angina, I am unable to decide, &c."

Here we have an angina that is not inflammatory, which appears to belong to a *catarrhal* or *inflammatory* affection, and produced by all the causes capable of exciting inflammations, separated from the inflammatory angina of Boerhaave, because the latter is always accompanied by fever, while the former "is not *generally* so attended."

Does not the general reaction of the organism against offending agents, which we call fever, depend, when consecutive, upon the gravity of the local lesion, and at the same time upon the actual condition of the subject? When the local lesion is slight, when the individual has a feeble constitution, or is exhausted by long and painful disease, the reaction will participate in the debility of the patient, or the slowness of the local lesion. This, we think, must be admitted by all, and it is conceding that both diseases are the same, except that one has fever and the other generally wants this symptom.

In the passage we have quoted, Bayle asks how the predisposition to the two diseases differs; but he tells us, that all the patients in whom he found œdema, "were persons enfeebled by previous sickness," and, consequently, the febrile reaction, if present, was necessarily feeble.

The pale colour of the epiglottic ligaments observed in the sub-

jects examined by Bayle and Thuillier, is sufficiently explained by the following reflections :—

1st. As these ligaments were infiltrated with pus or sero-purulent matter, it is not surprising that they should assume the colour of the liquids they contained. Besides, we do not know of an example of pus being *formed* without decided inflammation, and this argument of the white colour of the parts infiltrated would be wholly in favour of those who regard the disease as an inflammatory affection.

2d. The white colour is not constant, and when the patient has died suddenly, especially when the disease had seized him in perfect health, or during the existence of an inflammatory affection, as in Obs. XXVIII, the parts have frequently been found red and inflamed.

3d. It is not surprising that the aryteno-epiglottic ligaments should be infiltrated with pus after an inflammation, and pale after death, for the same thing is every day observed in parts invested with loose and lamellar cellular tissue, as in the eyelids after erysipelas.

4th. Finally, when the engorged ligaments are found white, without containing pus in the cellular tissue, we should not be more surprised than we are when we see a pale or yellow conjunctiva in patients who died with chemosis, a pale or yellow pharynx, when they died of a pharyngeal angina, or a pale face, in the bodies of those who died with an intense erysipelas of that part.

It would be useless to argue from the peculiar character of inspiration, or the alteration of the voice, which is the same in the inflammatory form as in the œdematous ; and as for the inspiration, it will be more difficult, if the tumour be soft, and occupy the epiglottic ligaments, so that it may be pressed into the larynx by the current of air, than when the disease is seated lower down, in which case expiration would be more difficult, but that would not justify us in saying that the *nature* of the disease has varied with the place in which it is situated.

We hope to be pardoned this digression, which may seem foreign to laryngeal phthisis, but it was necessary to establish the inflammatory nature of the idiopathic œdematous laryngeal angina of Bayle.

Let us now examine the consecutive laryngeal angina, which this author has only mentioned, and which, by its frequency and severity, exerts great influence on the other form.

When a wound or ulcer occurs in any portion of the body, the surrounding parts are soon infiltrated with fluids, become engorged, and form a tumour which varies in size, sensibility, and colour, according to its situation, the constitution of the patient, and often according to the *nature* of the lesion which gave rise to it. We then call this tumour an inflammatory engorgement, not because the part is inflamed, but because the engorgement was caused by inflammation in the neighbourhood. When this occurs in parts not essential to life, it is scarcely noticed, because we know it is a

natural reparatory effect of inflammation, which will disappear with the loss of substance, which is the principal affection, and towards which we should direct all our efforts.

The scientific practitioner will always ascertain the nature of the lesion, and, without caring for the consecutive symptom, will adopt an appropriate course of medication.

But, when the engorgement is so situated that its presence excites the most serious symptoms, as when a chancre causes infiltration of the prepuce, threatening a phimosis or paraphimosis; or, when a scratch on the conjunctiva creates a chemosis, which threatens the loss of vision; or, when any lesion, traumatic or secondary, has caused infiltration of the upper borders of the larynx, or the submucous cellular tissue within it; the engorgement becomes the principal affection, because its presence would cause more serious symptoms than the disease itself, and all our therapeutic agents should be directed against this symptom.

In these few words is contained the history of consecutive œdematous laryngeal angina; which, we think, should never have been established, as it has been by Bayle, who contends for the absence of inflammation, and by Bouillaud, who holds an opposite opinion. To explain our idea:—when there is an ulceration in the larynx, on the epiglottis, or on the lateral ligaments, the inflammation may be propagated so far around the ulceration as to provoke a considerable afflux of blood, and thus produce an inflammatory tumour in the ligaments; indeed, this is just what we saw occur in the patient of No. XXVII, the first case of M. Bouillaud's memoir.

But it may and frequently does occur, that the tumefaction of the cellular tissue of the superior extremity of the air passages is only the result of infiltration about a wound. Should the angina, in this case, be considered independent of any inflammation? We think not; for if there had not been inflammation, the infiltration would not have occurred.

The dog which Bichat mentions¹ was attacked with as clear a case of inflammatory angina as could possibly be found.

The patient mentioned by Olivier des Brulais, quoted by us under No. XXX,² the subject of the sixth case of Bayle, and those we record under Nos. I, XXII, XXIV, XXV, and XXXI, are nearly parallel.

We have found, in our own practice, five cases that exhibited all the stages of consecutive œdematous laryngeal angina. An examination of the plates by Chazal, Nos. 1, 5, 6, 7, 8, and 9, will

¹ *Anat. Descript.* tom. ii. p. 404. Bichat had passed a piece of packthread around the epiglottis, and thus withdrew the upper part of the larynx through a wound in the front of the neck. The next day he found the animal dead; the aryteno-epiglottic ligaments were the seat of a *serous infiltration*, which he considered the cause of death.

² We beg the reader to examine the autopsy of this case, and the deductions which follow.

give a better idea of the disease, and the various lesions that may excite it, than any descriptions.

We may then sum up our views of œdematous laryngeal angina in the following propositions:—

Bayle was right in distinguishing two species of the disease, a primitive and a consecutive. When primitive, it is almost always the result of an inflammatory fluxion of the larynx or neighbouring parts, and does not differ *in its nature* from that described by Boerhaave, (aph. 801 and 802.) When consecutive, that is, when occasioned by some organic lesion of the larynx or its dependencies, it may be inflammatory and active, or without inflammation and passive. In the first case, the action is propagated from the seat of the lesion to the epiglottic ligaments, or to the laryngeal mucous membrane. In the second, the serosity accumulated in these parts is owing to the usual engorgement of fluids around any loss of substance. In neither case, can we regard the œdematous laryngeal angina, connected with ulceration, as independent of inflammation.

Finally, whatever may be the origin of laryngeal phthisis, it should be considered the most frequent *cause* of œdematous laryngeal angina.

It may produce it, 1st, from its commencement, when the parts usually ulcerated are only partially inflamed, and then engorgement, being the only appreciable lesion, may be regarded as primitive. 2d; when, having caused general derangement in the larynx, it produces accumulation of liquids in these parts, and then the disease is consecutive.

In the last case, the engorgement from ulceration may be active, which happens when the disease progresses rapidly, as in case No. XXVII; or it may be passive, when the ulcer occurs in a chronic case.

The last species of consecutive œdematous laryngeal angina is most frequent; it is that we have seen, and of which we have reported many cases.

§ III. *Termination by cure.*—Laryngeal phthisis may terminate in recovery. We may hope to obtain this result, at the commencement, and before any considerable organic lesions have altered the tissues of the larynx and trachea. Indeed, when the disease is far advanced, and has debilitated the system by habitual dyspnœa, cough, and prolonged abstinence, and when signs of marasmus have begun to be developed, there is little hope left of saving the patient.

Still, the case given by Morgagni¹ proves, that we should not despair of success, although the local disorders be considerable, and of long duration. He mentions an old man who had often had syphilis, and who had long suffered habitual dyspnœa. After death, cicatrices were found on the base of the tongue. The epiglottis had been eroded on its edges, and resembled the parallel

¹ De sedibus et causis morborum, epist. 44, art. 15.

organ of a dog. The internal surface of the larynx and trachea was also cicatrised, as though the ulcers had been very deep. Their syphilitic character may have rendered the treatment more successful than it would have been in an ordinary case.

Many cases will be found in the chapter on treatment, which will give a better idea than any thing we can say, of what the physician has to fear or hope, according to the different species, cause, or degree of the disease.

We now proceed to the cases upon which we must depend for the support of the other propositions laid down in this chapter.

OBSERVATION XXVII.¹

Acute inflammation of the larynx and pharynx, œdematous angina of Bayle—
Death by asphyxia on the seventh day from the invasion of the disease.

P. L. aged 34 years, a cook, large, and of strong constitution, was brought to the Cochin Hospital on the evening of the 29th of December. She presented the following severe symptoms:—orthopnœa, inability of opening the mouth and swallowing, guttural rattle, voice hoarse, extinct, speech interrupted, sense of suffocation, face discoloured, slightly bluish and dull, expressive of fear and anxiety, the eyes sunk, livid and inanimate, loss of strength, pulse small, feeble, not very frequent. It required great effort for her to tell us she had been sick but four days, that after exposure to cold, while in a perspiration, she had been seized with rigors, trembling, and a violent pain in the throat, and that, notwithstanding the application of fifty leeches (at twice) to the throat, the disease still progressed. Although she appeared in a desperate situation, we proposed more leeches, to which she at first objected on the score of debility, but finally consented. Fifteen were then applied to the front of the neck, and she took a soothing draught. The night was passed in dreadful agony, tormented by threatened suffocation, the patient could not enjoy an instant's repose. The next day deglutition was easier; the patient *expired* rather than expectorated purulent matters mixed with blood. The rattle was not so strong, the respiratory murmur was feeble in all the anterior region of the thorax, the only part we could examine in the state of anxiety and *jactitation* of the patient; the orthopnœa continued; the pulse was small and laboured, the skin was rather cold than hot; being overcome by long and painful pervigilium, she frequently fainted from the violence of the dyspnœa; she asked for wine and broth to sustain her, but was allowed nothing but two soothing juleps which she swallowed with difficulty.

At one o'clock in the morning her countenance was almost cadaveric, with general pallor; a sensation of burning heat, coinciding with decided chill of the surface; eyes glazed, braying rhonchus,

¹ The first case of Bouillaud.

impending suffocation; pulse thready, frequently losing itself under the fingers; intellect perfectly clear. On the 31st, at 7 A. M. there was loss of recognition; the skin was covered with cold sweat, the pulse scarcely perceptible, and fugacious. Death followed in a few minutes.

Autopsy thirty-six hours after death—1st. *External appearance*.—The body of a robust female, with considerable embonpoint.

2d. *Digestive and respiratory organs*.—The mucous membrane of the pharynx and larynx presented a decided redness and a beautiful injection, which abruptly terminated at the œsophagus, but was prolonged into the trachea. On the left side of the larynx there is an ulceration with a grayish bottom, and raised red edges, altogether resembling a chancre. The epiglottis is inflamed, and more than three lines thick, its ligaments are similarly situated. The surrounding cellular tissue is considerably thickened, infiltrated, and engorged, so that the glottis looks more like a hole than a cleft. The cavity of the larynx is filled with frothy and ropy mucus; the external muscles of this organ appear healthy. The tonsils are red and inflamed; the left is singularly tumefied and ulcerated, and infiltrated with pus, which gives the substance a grayish colour. All the front part of the neck is tumefied, and the cellular tissue interposed between the muscles is infiltrated with pus which increases in quantity towards the hyoid bone and larynx. The thyroid body is soft and infiltrated with a yellowish viscid humour. The two lungs are generally crepitant, except at their posterior margin, where the tissue is compact, easily torn, of a red colour mixed with gray, purulent, and evidently inflamed. The mucous membrane of the bronchia is injected, and of a bright red; their cavity is filled with rust-coloured frothy mucus. The peritoneum is covered with scattering melanotic granulations, probably the effect of an ancient peritonitis. The mucous membrane of the stomach is red and injected, especially towards the pyloric region, where there are long, irregular, superficial ulcerations. The mucous membrane of the intestines is healthy throughout.

3d. *Organs of circulation*.—The heart is large and well formed and very fatty. Its cavities, the aorta and the large veins, are filled with fibrinous clots, some white, and others red.

OBSERVATION XXVIII.¹

Acute inflammation of the pharynx and larynx—Œdematous angina of Bayle—The patient objected to leeches, and died on the seventh day.

Eleanor Lemindre, seamstress, aged thirty-four years, of a lymphatico-sanguine temperament, had entered the Cochin Hospital for a disease of the heart, from which she was convalescent, when, on the 23d of February, 1822, after having eaten more than usual,

¹ The second observation of Bouillaud.

she was seized with a violent chill, followed by frequent vomiting. The next day there was an erysipelas of the face; the tongue was red, great thirst, hot skin, and frequent pulse—(sweetened gum water.) On the 25th and 26th the erysipelas spread towards the neck and scalp; the eyes were completely closed by the tumefaction of the lids. The erysipelas continued to progress on the 27th, with acute pain in the throat, difficult deglutition, laboured, high and hurried respiration; (leeches were directed, but she obstinately rejected their employment.) On the 28th the patient felt strangled by the inflammatory swelling in front of the neck; respiration, speech, and deglutition became more and more difficult; there were alternations of agitation and sinking, and as she was no longer strong enough to cough or spit, she constantly put her fingers to the back of her mouth, as though she wished to tear away the obstacle to respiration. The next day, March 1st, the tumefaction of the neck was enormous, suffocation imminent, aphonia almost complete. The patient, justly alarmed at the severity of her symptoms, agreed to have the leeches applied; but it was too late, and she died in a state of asphyxia two hours after their application.

Autopsy twenty-four hours after death.—Considerable embonpoint. The mucous membrane of the bronchia, larynx, and pharynx, is red and inflamed; the epiglottis and its ligaments are considerably thickened; the glottis looks like a very narrow hole, which is owing to the swelling of the neighbouring parts, and also to the mucus lodged between its lips. The cellular tissue of the larynx, neck, face, and especially that of the eyelids, is swelled, injected, reddened, œdematous, and infiltrated with pus. The lungs are generally crepitant, and not much engorged, even posteriorly. The mucous membrane of the stomach, particularly at the pyloric extremity, presents a redness, which extends into the duodenum, jejunum, and ileum, where it terminates by fading away gradually. The large intestine is contracted and healthy.

OBSERVATION XXIX.

Acute inflammation of the pharynx (œdematous angina)—Late application of leeches—Death in six days.

Chas. Garnier, a stone cutter, had frequently suffered with thoracic disease, and was about leaving the Cochin Hospital, where he had been treated for rheumatic pains, when, on the 10th and 11th of November, he complained of pain in the throat, and symptoms of angina, which had probably been produced by exposure to a current of air. There was much fever on the 11th, for which a mustard pediluvium was prescribed by the resident student. On the 12th the symptoms were aggravated; the air passed through the larynx with difficulty; the patient was oppressed, and breathed with his mouth open, and with a rattle; his words were not clear, but confused, which announced considerable swelling of the tonsils; he also swallowed with extreme difficulty; (eighteen leeches to the

throat.) In the night of the 13th and 14th he was agitated and excited. On the 14th, at the morning visit, he was dull, his face wan and livid, his lips discoloured, rather bluish; respiration frequent, hurried, with a rattle like that of the last agony; nose drawn, alternate dilatation and contraction of the nostrils; mouth always wide open, extremities cold, pulse accelerated, quick and convulsive.

Although death from suffocation appeared inevitable, we applied twenty-five leeches to the throat. The unfortunate being, whose agony must have been horrible, was so unwilling to acknowledge the danger of his situation, that he pretended there was no difficulty in respiration.

At the evening visit he told us that the leeches had relieved him, and that his respiration was easy. But it was exceedingly difficult, and always accompanied with a guttural rattle; a dry, rumbling rhonchus was heard in both sides of the thorax; the face was livid and cold, the pulse small, frequent, and slender; decubitus on the back, prostration was so great that he could neither expectorate nor spit; on the 15th he was even worse; there was more drowsiness (a large blister to the front of the neck.) At five in the evening the tracheal rattle was more braying; the body was uncovered, and all the extremities were cold, but the patient told us, with a smile, which gave a truly singular expression to his cadaveric countenance, that he was getting better and better; nevertheless, every thing announced approaching dissolution. He was still, his pulse thready, and he spoke with so much difficulty that most of his words were unintelligible. We had scarcely left the chamber when we were told he had expired.

Autopsy twenty hours after death.—Skin discoloured; emaciation.

Respiratory and digestive organs.—One half of the glottis was natural. Its contraction is produced by the swelling of its lips, which are enormously thickened; the arytenoid muscle itself was decidedly infiltrated. In the part occupied by the tonsils there was a grayish ulcerated surface; the external part of these organs was all that remained; it was softened, infiltrated with blood and pus, and almost like a portion of softened brain; the pharynx was scarcely injected.

The cellular tissue, which immediately surrounds the tonsils, was red and suppurating; that about the pharynx and larynx was œdematous, and presented some drops of pus infiltrated into its cellules. The laryngeal mucous membrane was covered with purulent mucus, and injected, but not so red as that of the trachea, the bronchia, or their ramifications.

The left lung was crepitant and healthy, while the right was heavier, infiltrated, and engorged with blood at its base and middle. Tubercles and pleuritic adhesions are evidences of the thoracic difficulties which he had experienced.

The mucous membrane of the stomach presented a rosy tint

which increased towards the pylorus, where it was covered by a thick layer of mucus.

The mucous membrane of the small intestine was only red at the end of the ileum. The inner surface of the colon was pale, and there were two small tubercles; the colon was healthy.

The external portion of the fibrous membrane of the spleen was transformed into a fibro-cartilaginous matter more than a line thick.

Circulatory organs.—The right side of the pericardium was covered with whitish pseudo-membranous patches. The heart was of usual size, its internal membrane reddened, its right cavities filled with coagula, generally white, and like gelatinous false membranes; it might be said that vessels had begun to form.

OBSERVATION XXX.¹

Œdematous laryngeal angina—Laryngotomy—Death on the fourth day after the operation—Œdema of the epiglottic ligaments and inferior vocal cords—Caries of the cricoid.

M. Barbe, captain of a coaster, aged 45, of a lymphatic temperament, had been subjected to a long mercurial treatment, operated on for hydrocele in both testes, and still has two hard tumours in his scrotum, one of which is very voluminous; towards the end of September he had an abscess opened at the back of the mouth, the cicatrix of which is now gaping.

Since then he has had constant pain in the direction of the larynx and above the sternum; voice hoarse.

About the 10th of March, 1833, a blister was applied to the nucha, but without any beneficial result. On the 20th he left Bordeaux to take his vessel to Nantes. The disease in his throat had been growing worse since January. Arriving at the mouth of the Loire in rainy weather he felt the pain increasing, but was still obliged to command the vessel. On the 26th he consulted Dr. G. at Nantes, for a deep seated pain in the tracheal region; as this physician did not observe any alarming symptom at his first examination, he prescribed six leeches to the neck, and a foot bath. The next day Dr. G. found respiration calm, pulse natural, voice hoarse, and the larynx painful; he prescribed six more leeches, to be followed by cups, and ordered a blister to the seat of pain. At length the orthopnœa, the hoarseness of his voice, and inspiration, and all the symptoms of œdema of the glottis, had become so distressing, that he was persuaded to leave his lodgings and enter the hospital of Hôtel-Dieu, on the 29th of March. Respiration is anxious, hoarse, and sonorous; inspiration difficult; expiration easy; imminent suffocation; aphonia or suppressed voice; moist skin; small, accelerated pulse; countenance expressive of pain. The

¹ Extracted from the inaugural thesis of O. des Brulais, April 11th, 1835..

patient has great courage, and views his desperate condition with sang-froid. The mucous orifices are discoloured, the complexion yellowish, the muscles soft, though sufficiently developed; except some dysphagia, the digestive functions are healthily performed; the whole buccal cavity is pale. The tonsils are not swollen, the posterior pillar of the left side only appears red and a little enlarged, the right has a plain cicatrix.

Ipecac. grs. xxx.; emollient gargle with honey of roses ℥j.; laudanum gtt. xx.

At six o'clock, many pints of water had been vomited without any decided improvement; orthopnœa continues, with moist skin and accelerated pulse.

At eight, the symptoms were progressing; the face was violet, and the pulse became more active. The sitting posture was maintained, with the head thrown back, especially during inspiration.

Sinapisms to the arms and thighs; insufflations of alum to the pharynx. This produced nausea; convulsive efforts to clear the throat, but with slight relief.

At nine, the orthopnœa became more violent; suffocation was impending. I spoke, in his presence, of the only means that could save him from certain asphyxia.

At ten, M. Barbe sent for me to perform the operation. The pulse was one hundred and twenty-five, small and thready; the face bathed in sweat; the lips violet; the trunk straight; the neck rigid; the mouth open; the trachea raised; all the respiratory muscles were convulsed to effect a few, short, hoarse, distant, jerking, incomplete inspirations.

At half past ten, the face being almost cyanotic, and covered with cold sweat, an incision was made on the median line of the thyroid cartilage, and extending to the prominence of the cricoid, being an inch in length; the lower edge of the thyroid and the upper margin of the cricoid were exposed; the muscles were separated by the head being spontaneously thrown back. The crico-thyroid membrane was next exposed, and a transverse incision was made near the superior edge of the cricoid ring. No artery was cut, and there was at first little venous blood. The barrel of a goose-quill was introduced, and secured as a canula. The lips of the wound would not unite, notwithstanding all our efforts, as the epidermis had been removed by the blister.

The canula had scarcely been arranged before the braying hoarseness of the inspirations ceased; the air was sent deep into the bronchia, with immediate relief; the face resumed its colour; the pulse its volume. The first hour there was cough with efforts to clear the throat. The colour of the sputa proved that some blood flowed into the trachea; and to meet this accident, I had no other resource than to apply my mouth to the canula, and draw off the blood which seemed to obstruct the bronchia. The hemorrhage was checked towards eleven o'clock, and respiration seemed to adapt itself to the new air passage.

Mixture of syrup of poppies, $\mathfrak{z}\text{j}$.; syrup of orange flowers, $\mathfrak{z}\text{j}$.; gum water, $\mathfrak{z}\text{iv}$. by the spoonful; deglutition was easy, and towards midnight the patient fell asleep. Respiration was now calm; the sound resembled that of a person asleep, breathing through the nostrils.

About three o'clock in the morning the patient awoke; the body was moist; perspiration on the face. He said the quill was not large enough. He spoke in a low tone when we applied the finger to the opening: the tube was obstructed by inspissated mucus, which was removed by a silver probe, and the respiration being again free, he went to sleep. The pulse was full, but not accelerated; there was no hemorrhage. At times, respiration was not so free, but relieved by clearing the tube, so that he had no return of dyspnœa.

30th; seven, A. M. Respiration perfectly performed through the canula; the pulse full, rather frequent; the skin of natural heat and colour; the patient was in fine spirits; there were some reddish sputa thrown off by an occasional cough. The tongue was pale, but not white. Bronchial respiration was detected with the stethoscope.

Prescription: diet, venesection, gum water, purgative enema, and the following gargle:

- ℞. Sulph. aluminæ, grs. xxx.
- Hydrochlor. acid, gtt. xv.
- Mellis rosar. f. $\mathfrak{z}\text{j}$.
- Aq. destillat. f. $\mathfrak{z}\text{iv}$. M.

During the course of the day, this gargle was occasionally injected by a syringe. The enema produced two good stools. There was cough, and mucous sputa were discharged through the canula.

At four in the evening, eight or ten insufflations were made with burnt alum: twenty-four doses of calomel, one grain each, were given at intervals of half an hour. Much mucus passed by the tube; respiration by the glottis was difficult; deglutition easy.

At six, no respiration could be effected when the tube was closed. The blood drawn in the morning was very serous; the coagulum small, and the buffy coat large. The venesection was repeated, and twelve ounces drawn; sinapisms were ordered to the legs.

31st of March, six in the morning. Twelve grains of calomel had been taken during the night; the gargle had been injected three times. He had a perfect calm, and prolonged periods of sleep until three, since which time respiration became anxious. The tube was free, but little air reached the lung: this would be called a *calm* spasm of the bronchia. The hand held before the tube perceived only a small short breath.

The pulse was lowered; f. $\mathfrak{z}\text{viii}$. of blood were drawn, which produced a sense of weakness; but respiration became easier as the blood flowed, and was more prolonged and deeper. The patient

expressed himself relieved; the pulse rose. Shortly after, there was a greenish fæcal evacuation, without the excretion of urine. Sinapisms to the feet and legs.

At seven o'clock he was calm, the respiration so feeble, that M. Ambrose Laennec no longer found the signs of bronchial catarrh; the sputa were white, spumous, and rather thin; they flowed from the mouth and tube: there was some cough. When the canula was stopped, the patient breathed through the glottis, but with difficulty and noise. Tongue white. Every spoonful of gum water produced cough, while the calomel was swallowed without difficulty. There was a slight pain in the abdomen.

Prescription: four spoonfuls of rice, (*crème de riz*), a cooked apple, gum water with an ounce of the syrup of opium, gentle enemata with half a dram of the tincture of musk, insufflation of alum, gargle of hydrochloric acid and honey of roses—continue the calomel.

The patient took the remaining twelve grains of calomel, and the opiate draught, the swallowing of which provoked a frequent cough, accompanied with white glutinous sputa that passed by the canula and mouth. Sometimes respiration was effected by the glottis, when the tube was closed; at others, suffocation would be produced by a continuance of the experiment. The enema was passed two hours after its application. The alum, which was frequently insufflated, only produced nausea. There was some quiet sleep,—once for four hours, with perspiration. The pulse was occasionally accelerated, but generally soft, and full enough to permit another bleeding, if the spasm should return.

Six o'clock, P. M. Since half past four, there have been two clear, greenish stools; perspiration, and frequent pulse. Twelve more doses of calomel, and the gargle.

R. Infus. kino. f. ℥vj.
Acid. hydrochlor. gtt. xxx.
Mel. rosar. f. ℥j. M.

To be injected during the night.

April 1st, at seven o'clock in the morning. He had several hours sleep during the night. The twelve grains of calomel were taken. The abdomen is not so painful; no pytalism; tongue white. Respiration painful when the tube was shut. We could not anticipate an early closure of the artificial opening. Inspiration was feeble in both lungs; there was mucous rattle in the large bronchia only; the sputa were less abundant; the cough less frequent: the blister on the neck still suppurated.

Prescription: rice, citric lemonade, gum water, one ounce of syrup of poppies: an injection of starch and poppies.

At two o'clock, respiration was difficult, spasmodic, and feeble; there was subsultus in the left arm. To lose eight ounces of blood, and take this julep:—

℞. Mucil. gum. acac. f ℥ij.
 Tr. moschi, gtt. x.
 Æther. sulphur. rectif. gtt. xx.
 Syrup. limon. f ℥ss. M.

Under this medication the dyspnœa ceased, and the inspirations were deeper.

At six in the evening there was an inclination to sleep. The sputa were less frequent.

At ten, continued drowsiness; the wound gaped when the tube was removed.

At eleven, there was a new fit of dyspnœa; the voice was free, although the air did not enter the lung. The pulse was hurried; the left arm agitated with convulsive movements. He could scarcely swallow a spoonful of the syrup of poppies prescribed in the morning; the spasm ceased, there was a deep inspiration; drowsiness soon returned.

April 2d, six, A. M., the dyspnœa continued; sudden spasm, and convulsive jerking of the arms. The night passed without any other accident than comatose stupor, from which the patient had to be roused to give him drinks and the gargle. He took two spoonfuls of gum water, with twenty drops of ether, and twelve of tincture of musk, which immediately relieved the spasm with a deep inspiration; he cried out, "I am again saved." Sinapisms to the feet; purgative enema.

At seven, there was mental excitation. The enéma has just come away: no spasm: he wanted to sing to prove that he was better; but a moment afterwards he shut his eyes, and seemed drowsy.

At eight, delirium; all the mixture of ether and musk had been taken. The sinapisms were removed, and six leeches were applied to each jugular.

Prescription: diet, orangeade, gum water, with ether, twenty drops; tincture of squills, fifteen drops.

The artificial opening remained free without the canula, which was laid aside. No more expectoration; the blister was drying up. The patient sometimes seemed dull, and then the respiration was wholly suspended; sometimes there was a series of short inspirations and expirations consecutively, and followed by complete repose.

At ten, there was prostration, and the respiration was so weak that the breath could scarcely be felt by the hand.

At two, P. M. there was great alteration in the features; the eyes were glassy and half open; scarcely any respiration, except by fits; complete dyspnœa; pulse almost lost. Death at four.

Autopsy eighteen hours after death.—Flesh pale, the testicles scirrhus, lost in a white homogeneous tissue which had invaded the scrotum, and in which there were tubercles. The left lung was engorged. The stomach, intestines, liver and spleen, kidneys and bladder, were natural.

Larynx.—Thyroid body healthy; the mucous membrane, above

the epiglottis, pale; no false membrane; os hyoides healthy; nothing remarkable observed in the thyro-hyoid membrane; on its posterior margin there were two points ossified. Epiglottis pale, rather thickened; epiglottic membrane and gland natural. The aryteno-epiglottic ligaments swelled, and white, and infiltrated with a gelatinous, transparent, trembling substance, in which neither purulent infiltration nor vascular streaks were observed. This œdema, being larger on the left than on the right side, gave the left ligament a fusiform appearance. The superior vocal cords, white, large, and of similar but of rather harder consistence with the epiglottic ligaments; ventricles occluded by the tumefaction of the inferior vocal cords, which were white, hard, creaked under the knife, and pressed against one another; their tissue resembled that of the testicles, but they were not tuberculous. The mucous membrane of these organs was white and thickened: the sub-mucous cellular tissue was hypertrophied: the arytenoid cartilages healthy, but surrounded by hardened cellular tissue: the synovial membrane of the left crico-arytenoid cartilage had its natural aspect, but the right was black: the thyroid cartilage, the crico-thyroid membrane, and the ring of the cricoid cartilage, presented no alteration, but the whole of the left anterior face of the *chaton* was roughened by a black fœtid caries, the mucous membrane destroyed, its posterior face reduced to a thin lamina, and thrown back, still covered by muscles. The tissue of the crico-thyroid muscles was natural; the posterior and lateral crico-arytenoids did not appear altered, but their adherent face was blackened, and they were misplaced by the anomalous shape of the *chaton*. The thyro-arytenoids were partially altered, in the same way as the vocal cord. The arytenoid muscle is distinct, but very pale. Nothing else was observed in the larynx, except the remarkable discolouration of the mucous membrane.¹

"Although this autopsy has shown traces of chronic laryngitis, which had advanced to scirrhus of the inferior vocal cords, nevertheless, I think that the patient, who had long suffered from this disease, might have prolonged his existence if the œdematous laryngeal angina had not occurred; for, notwithstanding their degeneration, the vocal cords were firm, and the dilating muscles of the glottis could still separate them; but the œdema above being soft and moveable, acted as a valve to the passage of air, and was not subject to muscular action; the angina appeared after its development."

This case fully confirms our opinion respecting consecutive œdematous laryngeal angina.

The patient had fits of orthopnœa, his inspirations were more difficult than the expirations; the practitioner rightly diagnosticated an aryteno-epiglottic swelling, *an œdema of the glottis*. Had he been

¹ This and the anatomical alterations are very analogous to the history of M. S. of our obs. I.

satisfied with that, and acted accordingly, especially if he had made a sufficient opening to keep up respiration, he might have extended his patient's life; but unfortunately he could not trace what Bayle had said respecting that anatomical alteration without also recalling what he had said of the symptoms. The unfortunate patient had the somnolence which appertains to slow asphyxia, he felt choked, (for one cannot long breathe through a goose quill,) and instead of adverting to the small diameter of the tube, a *mild spasm of the bronchia* was invoked to account for death. Consequently, an *anti-spasmodic* draught was administered, and, as the patient said, *I am again saved*, after drinking it, the conclusion was drawn, that the medicine had *calmed the spasm*, whereas, the *ether and musk* being stimulant antispasmodics, enabled him to breathe for a few instants, which he did by long sighing inspirations, like an animal just relieved from a partial vacuum.

The same spirit presided at the autopsy: there was an unwillingness to see traces of inflammation in this *œdema of the glottis*. There were red points about the aryteno-epiglottic ligaments, and induration of the vocal cords; there was caries of the left side of the cricoid cartilage, corresponding to the principal œdema; and, moreover, there had been a permanent pain in the throat for seven months, still, with all these signs of inflammation, he was unwilling to acknowledge a phlegmasia.

God forbid, that we should wish to impute blame to the conduct of the physicians who treated the patient! our remarks are only intended to show the unfortunate result of a false explanation of symptoms, and, at the same time, to establish the generally inflammatory character of consecutive laryngeal angina, and especially in the case under consideration.

We should say Captain Barbe died of simple chronic laryngeal phthisis, which caused inflammatory engorgement of the mucous membrane of the larynx, and, consequently, death by asphyxia, which is a frequent termination of laryngeal phthisis.

OBSERVATION XXXI.

Chronic laryngeal angina—Threatened suffocation—Tracheotomy—Death during the operation—Ulcerations of the larynx—œdema and induration of the lips of the glottis—Crude tubercles in the lungs.

A porter, aged fifty-two years, large, spare, and otherwise of a good constitution, and without any of the rational signs of pulmonary phthisis, entered the Hôtel-Dieu, in the course of November, 1834. He complained of his voice having been gradually changing for thirteen months; for the last six weeks, after being hoarser, it was almost lost. Respiration became difficult, inspiration was laborious and hissing, expiration required the aid of the diaphragm; incessant orthopnœa, awaking with starts, and painful deglutition soon followed, with so great dysphagia that the patient could not lie down, nor swallow a few drops of soup without great pain.

By passing the finger to the opening of the larynx, a decided swelling was felt; pressure on the hyoid region externally was painful; the patient coughed without spitting. No pulmonary lesion was detected by the stethoscope or by percussion.

As he had previously had chancres, an antisyphilitic course was pursued. During its exhibition, the symptoms seemed to yield a little; but they soon reappeared with such alarming threatenings of asphyxia, that tracheotomy seemed the only resource.

So soon as this determination was communicated to the patient he entreated us not to defer it, "that he should die suffocated, if we did not soon make him breathe." We yielded to such an energetic appeal, as well as to the urgency of the indication, and arranged every thing for the operation. The patient seated himself courageously, and was surrounded by a great many pupils.¹

The patient had syncope and some convulsive movements as soon as the bistoury had divided the skin, and before a drop of blood had flowed. He recovered in two minutes; the operation was resumed; syncope and convulsions recurred, and the respiratory movement entirely ceased. The patient was carried to a bed where the trachea was immediately opened; syncope continued. The blood flowed guttatim from the thyroid veins into the air passages, which were filled without any expiratory effort, except the spasms of death. The body was placed on the side to favour regurgitation, and the blood was drawn off by means of a sound—but the patient was dead.

At the autopsy, the epiglottis was found much swollen; there were many deep ulcerations and a considerable œdematous and scirrhus swelling at the lips of the glottis, which almost occluded its opening. This tumefaction, which extended to the neighbouring tissues, was remarkably diminished towards the lower part of the pharynx and upper extremity of the œsophagus. Some crude tubercles were scattered through the lungs.

In this case the tubercular affection followed the disease of the larynx, for the tubercles were crude while the disease was of thirteen months' standing. The patient was suffocated by the inflammatory swelling of the walls of the larynx before the pulmonary affection could have induced the termination of his mortal existence.

¹ We here committed a great error in not making him lie down, the proper posture for all grand operations. Had we attended to this axiom, it is probable we should not have lost our patient. But a worse mistake was continuing the operation after the first stroke of the bistoury had caused syncope and convulsions. We have performed the operation seventy-eight times, and this is the only patient we have ever lost during the operation.

OBSERVATION XXXII.¹

Supposed to have had asthma for a long while—Sudden death—Ulceration of the mucous membrane of the larynx and upper part of the trachea—Larynx filled by a mass of concrete pus.

“Virgo igitur, de quâ modo dicebam, annos nata ad quadraginta, jam diu asthmatica, imminutâ insuper voce, à medicis procul dubio ex pulmonibus laborare credebatur, cùm, acriùs asthmate ingruente, de improvise mortua est, et ab studiosis adolescentibus in Bononiense anatomicum theatrum illata anno 1704. Ventris viscera nihil quod præter naturam esset, habuerunt, si paulò majores testes excipias duros, albos, prorsus skirrhosos, quibus hydatides aliquot incumbabant. In thorace autem ipsisque pulmonibus nihil omninò vitiî; ut jam omnes intra cranium morbi causam repertum iri putarent. Sed et ibi rectè constituta inventa sunt omnia. Mirabantur cuncti qui dissecta ex ordine viscera diligenter inspexerant; sed muttò nos magis qui disseceveramus; cùm ego: ‘Quin laryngem quoque aperimus, Valsalva? Si fortè et imminutæ vocis, et asthmatis et mortis causa ibi delitesceret?’

“Cùm ille annuisset, quæri continuò inter nondùm sepultas partes, et ad me referri laryngem, jussi. Quam ubi à tergo secundum longitudinem incisam, diduxi, continuò manifestum fuit quod quærebamus. Pus enim ex albo cinereum, et quasi pultaceum, formatum in obturamenti modum, occludebat penitus cavum laryngis quod infra glottidem est: eoque loco tunica laryngem convestiens erat exulcerata, quemadmodùm et quâ proximos annulos aliquot tracheæ arteriæ operiebat, quanquam hic leviùs.

“Quibus postremo anatomes die in theatro demonstratis, satis omnibus factum est.”

OBSERVATION XXXIII.²

N***, thirty-six years old, of a robust constitution; at thirty-two she became a dealer in clothes and rags. Some time after, she experienced a small, dry cough, with pains in the larynx and difficulty of breathing when she went up stairs. The sound of her voice became sharp, the cough was accompanied with expectoration of grayish insipid sputa; general and fitful rigours were felt after eating.

Three years from the commencement of the disease, and six months before death, the symptoms were remarkably exasperated. The larynx became sensitive to the touch, and emitted a noise like burnt paper crushed in the hand. There was much pain in the chest, heat in the palms of the hands, and all the other symptoms of pulmonary phthisis. She died after four years' illness.

Autopsy.—The lungs were adherent to the ribs, and contained

¹ Morgagni, *De sed. et c. morb.* vol. ii. lib. 2, epist. 15, art. 13.

² Extracted from the Thesis of M. Laignelet.

many whitish, miliary tubercles, some of which had begun to suppurate.

The laryngeal affection *was more advanced*; the parts were more deeply ulcerated; the right arytenoid was almost entirely destroyed, and converted into a soft matter like that often found in white swellings. The left arytenoid was surrounded by a number of fungous excrescences.

OBSERVATION XXXIII. bis.

Acute laryngitis become chronic—Tracheotomy—Cure—Return of symptoms—Death—Tubercles succeeding the laryngitis.

Dr. Buillard published, in 1829, a *case of croup in an adult*, in which he was forced to practise laryngo-tracheotomy. We shall give a succinct summary as follows:—

Antoine, aged twenty-six, employed in the custom house, of a sanguineo-bilious temperament, of a very irascible character, and of irregular habits, was sent an exile to Stutzelbronn, a marshy country, surrounded by dense forests.

In 1824 he had a catarrh, which left him weak and emaciated; still he resumed his post on the 20th of November; his voice was altered, he had great oppression, and some fits of orthopnœa, which were at first calmed by a slight antiphlogistic treatment, and on the 2d of December there was only an alteration of the voice, which had become shrill and squeaking.

But on the evening of the same day the symptoms reappeared with new intensity, and with such rapidity that, on the next day, suffocation was imminent, and M. Bulliard practised laryngo-tracheotomy.

Some slight symptoms ensued from the operation and from the presence of the canula, but gradually disappeared. Respiration was completely established by the canula; but when the orifice was closed it was performed through the larynx with the greatest difficulty.

20th June, 1825, six months after the operation, the respiration continued the same; when the canula was closed the voice was hoarse, convulsive, low, not sustained, and requiring great efforts on the part of the inspiratory muscles. In other respects the general health was pretty good. The patient had recovered his strength and embonpoint.

A consultation was held between MM. Bulliard, Caillot, dean of the faculty of Strasbourg, Tourdes, Lobstein, and Coze. It was agreed:—

1st. That the laryngeal region offered nothing remarkable externally; 2d. That the obstruction to the passage of air through the upper part of the larynx might depend upon thickening of the mucous membrane, or upon œdema of the glottis; finally, that the

presence of the canula excited in the lungs, (*otherwise healthy*), an abundant opaque secretion.

Pills of calomel, golden sulphuret of antimony, and extract of cicuta were prescribed; also, frictions of hydriodate of potassa to the neck. The patient was somewhat relieved.

On the 10th of January, 1826, he entered the hospital of Bitch, with deep pains in the lungs, night sweats, diarrhœa, and all the symptoms of advanced phthisis. He refused all aids, and died on the 7th of March following, fifteen months and four days after the operation.

Necropsy.—The small intestines were ulcerated in many points. The two pleuræ were adherent to the walls of the thorax; that of the left side contained about a pound and a half of serum. The lungs were hepatised at their base. There were a great many tubercles at the summits, some of which were softened.

The bronchial ganglia, near the bifurcation of the trachea, were much swollen, and passing into the melanotic condition.

The artificial opening of the trachea was invested with a sort of mucous membrane, which seemed formed by an alteration of the skin.

The glottis was narrowed, and the ventricles of the larynx less extended than natural. The larynx offered no trace of œdema, or membranous productions.

This is a very interesting case, but we cannot agree with its author in considering it a case of croup in an adult. The symptoms first experienced were like those mentioned by Boerhaave as belonging to acute laryngeal angina, (aphor. 802.) The shreds of false membrane which the patient expectorated, were not described with sufficient perspicacity for us to recognise them positively; although of the nature of an inflammation, the first attack had passed over, and we find the larynx the seat of an inflammation, which, on the fifteenth day, required tracheotomy. The general symptoms were reduced, but the disease became chronic. The patient had an obstinate unconquerable cough, and finally died with numerous suppurated tubercles, eight months after experienced physicians had decided that the lungs offered no organic lesion, and fifteen months after the invasion of the laryngeal inflammation.

This case and the preceding, with No. XVIII, are additional proofs to those who believe that laryngeal phthisis may precede, not occasion pulmonary phthisis.

CHAPTER VII.

TREATMENT.

As the ancients possessed a very limited knowledge of these diseases we should not anticipate deriving much information respecting the treatment from a perusal of their writings. All that we do find, relates to cases of acute laryngeal angina the extreme danger of which they well knew. Therefore we shall not dwell upon their curative means, as most of them would be of little avail in chronic diseases of the larynx, but they will be noticed in the course of the chapter as occasion may offer.

In the management of disease, we should study the treatment of the first symptoms with as much solicitude as that to be opposed when the malady has been fully developed.

But, as laryngeal phthisis generally commences by a slight affection which becomes chronic, we must here attack this minor affection, which may generally be controlled by such treatment as is commonly applied to a common catarrh.

But when the inflammation instead of yielding seems to increase from day to day, when the hoarseness and aphonia continue, and when the cough assumes the characters we have described in the chapter on symptoms, it becomes necessary to have recourse to the energetic medications, to which we shall devote a few pages.

Rest of the organ.—Rest is the most indispensable adjuvant in the treatment of laryngeal diseases. It is evident that when the glottis is in constant motion from the act of phonation, and incessantly agitated by the vibrations of air, it cannot be easily cured. The patients should speak in an under tone,¹ or even content themselves with writing on a slate. Experience has taught us that no inconvenience arises from speaking in this manner, although the patients sometimes make great efforts to render themselves more intelligible to their hearers.

All physicians who have treated these diseases know the difficulty of obtaining this state of rest. There are few patients whose social relations will allow them to be condemned to silence for several months.

It is not impossible to cure serious affections of the larynx without enforcing this hygienic rule, as may be proved by many facts we can adduce.

Antiphlogistics.—Bloodletting and emollients are, perhaps, improperly ranked among the most powerful agents for combating the early stages of laryngeal phthisis. We cannot tell why one

¹ By *under tone* (*voix basse*) we mean the voice that is not fully developed, and consequently *insonorous*, (*insonore*), if we may be allowed so inexact an expression.

mode of drawing blood should be preferred to another ; but in this case, facts have taught us that venesection from the arm generally gives more favourable results than the application of leeches near the seat of the disease, at least when they are not *freely used*. Cut cups applied to the nucha are beneficial, but inferior to the other methods.

The peculiarities of the case should teach the physician when to prefer any one mode ; thus, he may sometimes choose to apply leeches to the thighs, when the disease coincides with suppression or diminution of the menses ; to the anus, when hemorrhoids have been suppressed prior to the inflammation in the larynx. He must seize these and other indications, which we shall not mention, because they apply to every chronic phlegmasia, as well as to simple laryngeal phthisis.

Emollients should not be incautiously prescribed ; internally they produce no inconvenience, but, the external application of hot poultices, advised by most physicians, frequently produces an opposite effect to that anticipated ; it provokes a considerable flow of blood towards the throat, and the symptoms, instead of being subdued, are often greatly aggravated.

Revulsives.—Revulsives are more important in laryngeal phthisis than emissions of blood, the latter being temporary in their effects, while the former are more lasting, and their action should be long continued ; for this reason we regard transient blisters as wholly useless, at least unsuited to meet an accidental and somewhat acute symptom. Permanent blisters, placed in front of the neck cause such acute pain, that those of our patients to whom we advised them, were obliged to lay them aside. In men particularly, the beard was an obstacle against which it was difficult to guard. We therefore generally placed the permanent blister upon the nucha. But if the patient will submit to the seton we always prefer it as being less painful, less irritating, and less difficult to dress.

The seton, placed in front of the larynx, about opposite the cricothyroid space, occasionally produced happy results, when that on the nucha seemed adding to the difficulty.

Antimonial frictions and caustic potash are the revulsives to which patients object least, and which we ordinarily employ, without, however, deriving any very good effects from them. The antimonial frictions should be continued for some days, and not laid aside when the pustules first appear, but should be persisted in one or two days longer, until the eruption be confluent. Then again, when the scab begins to fall, the ointment should be resumed, and so twice a month while the disease lasts.

We generally direct a small piece of the caustic potash to be applied once a week, on either side of the larynx and trachea, in this way we get five or six canterised surfaces suppurating at the same time without the necessity of inserting peas to keep them open. We

have much less confidence in revulsives when they are applied at a distance from the diseased organ.

Opiates.—Many facts prove that pain, although often caused by the inflammatory afflux of liquids, may perhaps cause inflammation itself, or at least congestion. Hence it is important to calm it by opiates both internally and externally. They should also be considered in another point of view, they calm the cough, which is a very important object to effect when inflammation or ulceration exists in the larynx. External applications generally suffice to calm the local pains.

Among them the most powerful are the extracts of stramonium, the extract of belladonna, which is similar, and the salts of morphine, which should always be applied to a vesicated surface.

Bennati has particularly extolled the topical application of opiates.

He made repeated frictions of belladonna in front of the neck. This article, which is decidedly useful when there is much pain, and when used in the beginning of the disease, is not so important as the author represents it, when the disease is confirmed and when there is no local pain.

M. Cruveilhier, in similar cases, and to answer the same indication, has directed the patient to smoke the leaves of datura stramonium or of belladonna, which had been boiled in a solution of opium and afterwards dried. This calms the cough in most cases, and may in that way assist in effecting a cure.

We now come to another class of remedies which are much more efficacious.

Topical medication.—When a simple or ulcerative inflammation has become chronic, and occupies but a small point in the economy, it generally resists even the most thorough general treatment. On the contrary, topical medication or the direct application of medicines to the injured part, almost always modifies it. Thus the most obstinate ulcers of the throat, nose, eyes, skin, vagina, rectum, &c. &c. are generally controlled by topical applications made to their surface. These are either emollient, detergent, or irritating, and sometimes destroy the surface of the lesion. They are either pulverulent, liquid, gaseous, vapoury, or solid.

The only difficulty consists in the anatomical relations of the parts, the action of the remedies being the same internally as externally.

If then we can find a method of treating the larynx by topical remedies, as we do the canal of the urethra, we shall open a new therapeutic avenue to laryngeal affections, and render them curable.

We do not deny that the functional importance of the organ opposes new difficulties, but we have been able to accommodate our applications to respiration, and have used some new remedies and obtained results to which we wish to call the reader's attention.

This is the problem to be solved; *To ascertain a method of bringing medications in form of vapour, powder, or liquid, in contact with the mucous membrane of the larynx without interrupting respiration.* We think we have succeeded in effecting this object.

Inspirations of dry or moist vapour.—Various fumigations have been prescribed for laryngeal phthisis and other affections of the respiratory organs. The most common were vapour of water, either pure, or impregnated with emollient, balsamic, or aromatic substances; sometimes dry vapours were used, as those of pitch, resin, henbane, tobacco, and poppy. Messrs. Cottereau, Gannal, Richard, and ourselves, have invented various forms of apparatus for this purpose, but we frankly confess that a simple teapot is as well adapted to the purpose as the most complicated machines.

The moist fumigations may be charged with volatile matters, as chlorine, iodine, hydro-sulphuric acid or the various essential oils, which are not indeed without their specific action on the mucous membrane of the air passages, as has been proved by the experiments of M. Gannal, Cottereau, &c.

We have even made our patients inspire fumigations of cinnabar, sulphurous acid, &c. &c., with various results. All these applications have the serious inconvenience of not being confined to the larynx, but coming in contact with the pulmonary mucous membrane, which they irritate exceedingly, and it is impossible to confine their action to the diseased organ; this is the reason we have renounced their use. We now employ nothing but emollient, aromatic, balsamic, and opiate vapours, and such as can exert no unfavourable influence upon the lungs.

Liquid medications.—Liquids are much more easily applied, and without risk of injuring the trachea and bronchia. We have used those that are irritating, and others simply astringent. The former are solutions of nitrate of silver, of corrosive sublimate, sulphate of copper, and nitrate of mercury; but the first we decidedly prefer on account of its rapid action, its harmlessness, and its efficacy in almost all external maladies.

We use it of various strength; sometimes we put a dram of the nitrate to two drams of water, sometimes half this strength.

Various methods have been devised to apply the caustic to the larynx: when we wish to operate upon the upper part of the larynx and the epiglottis, we take a piece of paper firmly rolled together, and bent at its extremity, which is to be soaked in the solution, so as to take up at least a drop; the mouth is to be opened, and the tongue depressed with the handle of a crooked spoon. The porte caustic is then introduced, and when its extremity has passed the epiglottis, it is to be depressed, which buries it in the upper part of the larynx. A piece of whalebone answers the same indication, and is more convenient, because less flexible than the rolled paper.

When we wish to cauterise the pharynx, the base of the tongue, and the top of the larynx at the same time, we take a whalebone,

at least a line and a half thick, that it may not bend readily ;—this is heated an inch or more from one end, and, when sufficiently softened, we curve it at an angle of forty-five degrees. To this end, we fasten a spherical piece of sponge, six lines in diameter : the sponge is to be moistened with a solution of nitrate of silver, the mouth opened, and the tongue depressed as before. When the isthmus of the gullet is passed, there occurs an effort of deglutition which elevates the larynx, and we seize this opportunity to draw forward the sponge, which had been at the entrance of the œsophagus. By this manœuvre we get at the glottis, and then it is easy to express the solution into the larynx : the cough, which now occurs, favours the introduction of the caustic. The operation often excites vomiting.

This plan, though not painful, is very disagreeable, and many patients refuse to submit a second time. We then use the following, which is equally efficacious, and less unpleasant.

It consists of a small silver syringe, like Anel's, with a tube five inches long, and curved at the end. The opening of the tube should be at least a quarter of a line in diameter. The syringe is filled to one-fourth of its capacity, and then the piston is raised to its full extent, so that there shall be one quarter solution, and three quarters of air in the instrument. This is indispensable, that when we depress the piston rapidly, we may produce a fine shower, and not a full jet.

The patient is placed as before ; and, when the end of the tube has passed the epiglottis, the liquid is pushed out of the instrument, and is simultaneously introduced into the larynx and upper part of the œsophagus. The patient instantly experiences a convulsive cough and regurgitations, which enable him to throw off all the solution which is uncombined with the tissues. We then make him drink a few mouthfuls of hydrochloric lemonade, or simple salt water, to decompose any of the solution that may have remained in the œsophagus.

One must have practised, or seen these cauteries performed, to have an idea of their harmlessness, and of the little pain which results. We are very much afraid of cautery, for it is exceedingly painful on the skin or mucous openings, though scarcely felt in the pharynx, larynx, or neck of the uterus. We must not confound the organic sensibility of the larynx that sympathetically causes the cough, with the animal sensibility of this organ, which is extremely obtuse.

We shall furnish some cases that show the utility of cauterising the larynx in the first stage of laryngeal phthisis.

OBSERVATION XXXIV.

A slight chronic laryngitis.—Aphonia gradually developed in a young girl of a tuberculous family.—Cauterisation of the upper part of the larynx.—Rapid convalescence.

Miss Héloïse G——, of Bapaume, was the youngest child of a mother who died of phthisis. She had come to Paris at thirteen years of age.

Her infancy had been delicate; but she had never spat any blood, nor was she particularly liable to take cold. Shortly after her arrival here, she experienced, almost every month, an erythema of her face, which lasted two or three days, and was accompanied with fever. This we attributed to the approach of the catamenia: we merely directed our attention to this point, and the discharge was established at the age of fourteen.

From this period, the congestion about the face was only observed once, when it resembled erysipelas, and lasted two days. The following month the discharge did not appear, but a cold she had had three months, grew rather worse; the voice became hoarse, and was at length completely lost. The family were greatly alarmed; indeed, the hereditary predisposition offered great cause. We made a most careful examination of the thorax, without finding any signs of tubercles. There was no pain in the larynx; the pharynx was red, and rather painful.

Antiphlogistics and emollients were first employed, then gargles of alum, and syrup of *erysimum*:¹ but without avail. As there was no pain, we resolved to introduce the solution of nitrate of silver, fifteen grains to two drams of distilled water. The larynx was touched with a little roll of paper, according to the plan mentioned above; at first, it was applied every day, then twice a week. After the second application, some hoarse sounds were produced during the day: after the third, the aphonia ceased, but the voice was still cracked: it acquired its natural character after the eighth application, and the cure was established. *

¹ This is the *Erysimum officinale* of Linnæus, which has been considered officinal in the United States Dispensatory, under the name of *Sisymbrium officinale*:—"A small annual plant, growing both in the United States and in Europe, along the roadsides, by walls and hedges, and on heaps of rubbish. It has an herbaceous, somewhat acrid taste, which is strongest in the tops and flower spikes, and resembles that of mustard, only much weaker. The seeds have considerable pungency. The herb is said to be diuretic and expectorant, and has been recommended in chronic coughs, hoarseness, and ulceration of the mouth and fauces. The juice of the plant may be used mixed with honey or sugar, or the seeds may be taken in substance."—*Tr.*

OBSERVATION XXXV.

Slight chronic laryngitis.—Sudden appearance of aphonia, which continued three months.—Cauterisation of the throat.—Cure effected on the fourth day.

Henrietta Maillet, aged twenty years, entered Hôtel-Dieu on the 20th of August, 1831. She had menstruated at seventeen, but it has always been irregular, and small. In 1830, she had an inflammation of the lungs, which was completely cured. The lungs and heart were in the most healthy condition. She never had hæmoptysis, nor any symptom of hysteria.

The affection for which we treated her had existed three months. In the end of May, while menstruating, she joined a party to the country, and took cold. At night she went to bed with a sore throat, and general uneasiness, but rested pretty well: in the morning, she found her menstrual discharge suppressed, and that she had complete aphonia. From that time, no treatment relieved the loss of voice, and she could not produce any sounds above a whisper.

A physician had been called, who bled her twice without any effect. Two months afterwards, as the menses did not return, leeches were applied to the anus. The aphonia was not at all relieved, although menstruation was established. Still, the larynx was not painful; there was neither cough nor fever. A large blister was applied to the front of the neck, and kept suppurating for a long while; but this also failed, and Henrietta came to the hospital in despair. The menses had made their regular appearance a few days previously, but her disease was no better.

We thought syncope might produce a happy effect, as it sometimes does in cases of hysterical aphonia; to produce lipothymia, we bled her sitting in a chair. Syncope followed, but without any advantageous results: it was only observed that she uttered a sharp cry at the moment the lancet pierced the integuments.

We watched the effect of the venesection two days, it proved as unsuccessful as heretofore.

It occurred to us to apply rubefacients to the skin of the neck, as we had known a case cured by a sinapism to the larynx, but were deterred by the want of success that had attended the blister. Topical medication appeared preferable to any other, and we resolved to cauterise the pharynx and upper part of the larynx.

The operation lasted but a quarter of a minute; we withdrew the sponge, and convulsive movements, cough, and frequent spitting immediately ensued, but ceased after two or three minutes, except some cough and spitting. The patient did not feel any acute pain in the throat, but complained of a disagreeable taste.

The next day there was no change; she had some pain on swallowing. Forty-eight hours after the operation the aphonia had

partially disappeared, the patient spoke clearly. When we interrogated her, she said she was better, and spoke hoarsely but with sufficient distinctness to be heard at a distance of two or three yards; she afterwards became aphonic, and only a hissing was heard in the larynx when she made great efforts; she had a slight pain in the throat.

We directed absolute silence and prescribed an emollient draught to be taken frequently in small quantities.

On the morning of the third day, the voice was much clearer than it had been. In the evening she could pronounce some sounds quite distinctly.

On the fourth day she spoke with facility; the aphonia had completely yielded, and did not return: the voice was only a little cracked, and the larynx was occasionally obstructed by mucus which was thrown off by coughing.

The fifth day, the voice was clearer and louder, the pain of the cautery was still felt about the larynx, but it was slight and did not prevent her eating bread and solid food. The voice soon recovered its natural character, and Henrietta Maillet left the hospital on the 10th of September, perfectly cured, but feeling a very slight pain at the point corresponding to the upper part of the larynx.

OBSERVATION XXXVI.

Chronic laryngitis of three months' standing, with aphonia that appeared suddenly with a cold.—Cautery of the throat.—Cure on the third day.

A woman thirty-seven years old, came to the Hôtel-Dieu, to be treated for an aphonia which had lasted three months—she had had an acute catarrh, with scarcely any fever, a short time before. A fortnight after the commencement of the catarrh, the voice was suddenly lost, and has never since returned, although the cold has completely disappeared. We explored the chest with great care, but could discover no traces of pulmonic lesion. The larynx was neither swelled nor painful, the tonsils looked natural, and the menstruation was regular. We immediately used the cautery; she improved, and three days afterward the voice was restored. She continued in the hospital some time without having a relapse.

OBSERVATION XXXVII.

Chronic laryngitis for several years.—Gradual appearance of aphonia in the course of a chronic catarrh.—Cauterisation of the throat.—Cure in one month.

This patient was forty-three years old. For a long time she had been subject to a bronchial catarrh which returned every winter, and lasted until spring. She was a shopkeeper in the Temple, and was constantly exposed to the air under a penthouse which

was her shop; and she was obliged to speak loudly. Her voice insensibly changed its volume, and finally she became completely aphonic in March 1831, after a catarrh which had lasted several months. At first she did not mind it much, but finding it did not improve, she consulted several physicians, who all prescribed blood-letting and revulsives. At last, she became weary of the fruitless attempts, and determined to enter the royal Maison de Santé. Professor Dumeril asked us to visit her: he had applied a large blister to the front of the neck, and prescribed a mild regimen.

When we first saw the patient, her face presented the appearance of perfect health. The encephalic and abdominal organs performed their functions well. There was no fever, the chest sounded well. There was cough and rather abundant mucous expectoration, nothing induced a suspicion of tubercular phthisis. In deglutition there was an obstruction (*embarras*) rather than pain in the region of the larynx. When the patient made great efforts to speak, her voice was low, but when she was excited and tried hard to produce some vocal sound, occasional hissings were heard.

Although we entertained little hope of effecting a cure, we nevertheless, resolved to try one thing which we considered wholly free from danger, and not very painful. We cauterised the upper part of the larynx.

This operation did not occupy a quarter of a minute, we withdrew the sponge and hiccough immediately followed, with vomiting and an uncontrollable cough, which lasted nearly a quarter of an hour: When the cough and vomiting had moderated, we asked if the operation had caused her any pain, she answered, *with a hoarse but strong voice*, that she had suffered very little; and that she was astonished at the change in her voice. "It has been eight months," she said, "since I have done as much." We enjoined silence, and directed the alum gargle. The hiccough and nausea returned at intervals until the next morning, and the pain in the throat, inseparable from the operation, continued during the second day, still it was not so great as to prevent drinking and eating soups.

The aphonia was not improved; we vainly hoped that it would diminish in a few days, if not immediately after the cauterisation. She left the house in ten days.

Soon afterwards she came to see us and entreated us to make another trial, saying it was the only thing that had made her speak at all, and that she hoped much from a second application.

We were of the same mind, and went to her house with M. Professor Bonillaud, and cauterised a second time with a saturated solution of nitrate of silver; but we used a larger sponge and so much liquid that a very slight compression would easily squeeze out ten drops. Thus, though the patient had prepared herself she could not bear the introduction into the larynx, and by a convulsive cough, she threw so large a quantity of the caustic solution into our face, that it was covered with black spots for several days.

Immediately after the operation, the pharynx, tongue, and all the buccal mucous membrane were of a milky whiteness; a violent cough and vomiting immediately ensued, and the latter continued for twenty-four hours whenever the patient drank any thing: still, the parts were scarcely painful: there was neither fever, pain in the stomach, nor loss of appetite; all the functions were natural.

This time she did not speak immediately after the operation. Forty-eight hours after she breakfasted on oysters and bread, without feeling any other inconvenience than a slight difficulty of deglutition. Her voice was not restored, but she produced some obscure sounds with great effort. The cough was more frequent, expectoration more abundant. We prescribed a gargle of saturated solution of alum and vinegar, to be used eight or ten times a day.

Twelve days passed in this way, during which the cough continued obstinate and the expectoration abundant; occasionally when there was some respite from the cough, she articulated a few words in a hoarse voice.

Thirteen days after the second cauterisation, while supping with her husband and shop girl, she spoke for some minutes, and the aphonia did not again recur.

The voice, at first hoarse and sharp, became clearer, though, if she walked too long, spoke much, or exposed herself to cold, it would become hoarse but not aphonous. To conclude, the character of her voice is still much altered, but it is as good as it has been for several years.

OBSERVATION XXXVIII.

A cold followed by hoarseness—Fatiguing cough—Emaciation—Exacerbations of fever at night—Good thorax—No benefit derived from an emollient treatment—Repeated cautery with nitrate of silver—Cure.

Miss T. is twenty years old, a native of Madras, but resident of Paris since her sixth year. She had always enjoyed good health, none of her family have had disease of the lungs; her mother, who is still young, has had her hand much deformed by the gout.

About the middle of the summer of 1834 Miss T. caught a slight cold, after which she had frequent cough, with a sense of pain in the region of the larynx. During the winter the cough increased, and the voice was cracked.

In the spring of 1835 she had fever every evening; she became thin, and the cough returned both night and day, so as almost to deprive her of sleep. She lost her appetite, and although there was no expectoration, and the sound of the voice and respiratory murmur were natural, we could not help anticipating great disturbance.

Dr. Lebreton, her physician, prescribed fumigations, which afforded no relief. The mildest and most soothing regimen, with the use of asses' milk, effected nothing. She was sent to Enghien, to drink the waters, where her health improved a little, and she

returned without fever; but as the cough continued, though somewhat diminished, and as the throat and larynx were the seat of acute pain, the patient was placed under our care in the beginning of October, 1835.

The tonsils were somewhat tumefied, the veil of the palate swelled, the uvula prolapsed and œdematous, the larynx was painful, especially when the patient spoke loud, and the voice became hoarser at night, and in a warm room.

We first recommended frictions of the extract of stramonium to the front of the neck, and insufflations of the subnitrate of bismuth. These measures calmed the cough a little. We substituted for the bismuth a powder, of one part acetate of lead, and seven of sugar candy. After using these for a fortnight, as there was no melioration, we commenced with the nitrate of silver, and touched the tonsils and uvula with the lunar caustic.

In three weeks the cough and tumefaction of the tonsils entirely disappeared, and the swelling of the uvula was diminished. But as the superior region of the larynx was still rather painful, we resolved to apply the solution of half a dram of the nitrate of silver in two drams of water, to the epiglottis and upper opening of the larynx. This operation was repeated every fourth day for six weeks. The voice was completely restored, the cough ceased, the general health improved; the pain in the larynx occasionally returned when she spoke too much, or when she went to a ball where the temperature was elevated.

The treatment was continued longer than would have been necessary had she been willing to submit to speaking low, but it was impossible to restrain her from talking so much that we expect she will have a relapse.

OBSERVATION XXXIX.

Hoarseness for four years—Waters of Mont-d'Or—Improvement—Relapse—Same modification without success—Various other measures equally inefficient—Dry cough—Aphonia—Emaciation—Alum gargles—Cauterisation with nitrate of silver—Cure.

Madam G. twenty-five years old, of a family with good chests, has never had a bad cold nor hæmoptysis. In 1827, when first enceinte, Dr. Lebreton, her physician and accoucheur, observed that her voice was a little cracked; there was no pain in the larynx. From this period until 1832 the character of her voice continued to diminish, and she was sent to drink the waters of Mont-d'Or, which were beneficial. The next winter the symptoms were aggravated, and in August, 1833, she returned to Mont-d'Or, but without deriving any advantage.

At the commencement of 1834 there was a consultation of the leading physicians of Paris, who directed a mild regimen and asses' milk, at the same time they enjoined a low tone of voice. These

instructions were closely followed for six months without any beneficial result.

Small blisters were then applied to the neck, and renewed every other day for about five weeks, while the patient used gargles of decoction of pomegranate bark, tisans of florentine iris, and Baréges baths.¹ The baths seemed to improve the general health, but the larynx continued diseased.

In the month of February we were called in consultation with MM. Lebreton and Jules Cloquet. The voice was extinct, the patient could only produce a few hoarse sounds with great exertion. The larynx was not painful. There was neither swelling nor redness in the pharynx. Habitual cough, without expectoration.

Auscultation and percussion did not lead us to suspect tubercular lesion in the lungs, but there was decided emaciation, the general health was bad, and we feared the development of the worst symptoms. It was unanimously decided:

1st. That gargles of a saturated solution of alum should be used exclusively.

2d. That every week the tonsils and upper part of the larynx should be touched with a solution of half a dram of nitrate of silver to two drams of distilled water.

3d. That she should take half a glass of Bonnes water, morning and night.

Under the influence of this treatment, which was continued two months, the voice became fuller, and the general health was sensibly improved. She then went to the country, with directions to make insufflations with powdered alum, and occasionally with calomel one part, and candied sugar seven parts.

At the same time we prescribed the following vocal exercise:—Madame G. was to speak habitually in an under tone. Three times a day she was to read slowly, but aloud, for five minutes.

Three months after her arrival at Burgundy she considered herself cured. She resumed her former habits and conversed freely, always avoiding the open air and evening exposure. Her general health was excellent; the cough had entirely ceased.

In January, 1836, she took cold, which was followed by hoarseness for some weeks.

April, 1837. For three months, after a violent cold, the voice has again been very hoarse; but she was unwilling to sacrifice pleasure to health, and waited for fair weather to place herself again under our care.

The treatment is not always successful, as will be seen by the three next cases, which show that we may improve some symptoms without effecting a complete cure.

¹ *Sulphurous Baréges Baths.*

B. Sulphureti potassæ ℥iv.
Aquæ communis ℞cc. M.

RATIER, p. 72.

trous 10

OBSERVATION XL.

Simple chronic laryngitis, lasting three years—Four applications of the cautery in three months—Decided melioration—Treatment laid aside, return of the symptoms—Probability of tubercles.

Madame V., aged twenty-four, was a woman of active mind and great nervous susceptibility, who enjoyed general good health. She was an excellent musician. Every morning when she awoke she had a violent pain in the throat, which hindered deglutition, but insensibly disappeared in a few hours. She perceived with mortification that her voice had lost its clear sound and power.

On the 1st of August, 1835, we practised a first cauterisation of the pharynx and larynx, with a solution of the nitrate of silver (one dram to the ounce.) The operation caused such violent nausea and vomiting, that, disgusted with the remedy, she renounced all hope of recovering her voice. We prescribed a gargle of one ounce of alum to two pounds of water.

In a few days she begged us to repeat the cautery; her voice was already stronger, and had gained a note. Wishing the first application to have its full effect, we waited until the third week had elapsed before we repeated it. The nausea was less troublesome, and the voice was somewhat improved. The cautery was twice practised at intervals of three weeks, and the voice could reach *fa*. A severe cold, subsequent to a chill, forced us to suspend the treatment, to the great regret of the patient, who waited impatiently for its resumption, hoping to obtain the desired object.

But the cold took an alarming form; unequivocal signs of pulmonary tuberculation were manifested, and the voice was again altered; we did not feel justified in having recourse to the remedy which had before succeeded so well.

Our readers will remark that the cautery of the larynx effected a decided improvement, though the tubercular diathesis probably existed from the first. The same remark will hold in the next two observations.

OBSERVATION XLI.

Aphonia gradually developed in the course of a chronic inflammation of the larynx—Cautery of the throat—Unsuccessful.

A young woman of twenty, with a sanguine temperament, entered the royal hospital of faubourg Saint Denis, to be treated for chronic aphonia of several months' standing. She was placed under the care of Professor Duméril, who called us in to the case. She had the appearance of perfect health; for eighteen months that she has been married, she never felt any other trouble than that for which she claimed our attention; for a year she has had a pain in the larynx, which was decidedly increased whenever she spoke much. Her

voice easily grew hoarse, and became more and more grave; about the fourth month of the disease the larynx was swelled and painful, and occasionally, in the evening, the voice was completely lost. The disease grew worse, and six weeks before she came to the hospital, she had entirely lost her voice.

Still there was little cough, and no external sign or general symptom which indicated pulmonary tubercular lesion. The sound was similar under both clavicles, the respiratory murmur feeble, the inspiration full, and without mucous rattle. There had been no hæmoptysis, no disposition to diarrhœa, fever, or emaciation.

We supposed there was a chronic phlegmasia of the mucous membrane of the larynx, and as there was much pain, we should certainly have applied leeches and used emollients had not these means already proved fruitless. We therefore applied a saturated solution of the nitrate of silver to the throat and upper part of the larynx.

Vomiting immediately followed, and deglutition was difficult for two days; but after seventy-two hours the voice became more sonorous, it was still very hoarse, but could be easily heard at the distance of ten yards.

We prescribed a saturated solution of alum as a gargle, and frictions of the alcoholic extract of stramonium to the front of the neck. Still, as the voice did not improve decidedly, we renewed the cautery a fortnight after the first application. The improvement was now evident, and one month from the commencement of the treatment, the voice was restored; but she could not long speak aloud without pain and hoarseness. Our efforts to combat the pain with frictions of belladonna, and the application of morphia to blisters on the front of the neck were useless. We then thought that the obstinacy of the inflammatory symptoms was chiefly owing to a constitutional syphilitic affection, and therefore commenced a mercurial treatment; and under the influence of this new medication there was some improvement. There was still pain in the laryngeal region, and a troublesome disposition to get hoarse from the slightest cause, but the more alarming symptoms of laryngeal phthisis were dissipated, or perhaps rather masked.

OBSERVATION XLII.

Aphonia after a hoarseness that had lasted a long while.—Very frequent cauterisation.—Incomplete re-establishment of the voice.—Five months after, threatened suffocation, tracheotomy, death.—Tuberculous and poly-pous tumour in the larynx.

M. de Serry was directed to us in January 1835 by Dr. Paradis of Auxerre. For a year past he has occasionally observed his voice at first a little cracked, and soon permanently hoarse; by de-

grees, the timbre became more grave and less sonorous; and at last, for two months it has been entirely lost; there was no pain or swelling in the laryngeal region. He has never had catarrhs or hæmoptysis; no organic lesion of the pulmonary tissue could be detected by the most thorough auscultation and percussion. He seemed to enjoy the fullest health, all the functions except that of the larynx were perfectly executed. We need scarcely say that the antiphlogistic and revulsive treatment with mild and debilitating regimen had been used without success. We determined to employ the cautery, which was used daily for a week, then three times a week for a fortnight, afterwards twice a week for the same period, and then only once a week for a month; neither pain nor inflammation ensued. For a week there was no melioration, then there were some very hoarse sounds; at the end of a month the voice had some character, but was very hoarse; finally, at the end of two months and a half, the patient spoke with a cracked voice, and at last he could make himself heard in a large hall, in the midst of a crowd of persons speaking aloud.

M. Serrey then left Paris. The rest of his history may be found in the first observation. Notwithstanding the condition of the mucous membrane, we were able to modify it to some extent, as the character of the voice was restored.

Pulverulent topical remedies.—We were led by that sure guide, analogy, to apply irritants to the larynx. We observed that collyria of corrosive sublimate, sulphate of copper, nitrate of silver, and sulphate of zinc modified the chronic phlegmasia of the mucous membrane in ophthalmia both rapidly and happily.—Similar results were observed in the nasal fossæ, and we supposed it would be the same with the larynx: experience proved that our conjectures were well founded.

It cannot be denied that the introduction of liquids into the larynx is attended with difficulty; the operation is unpleasant for the patient, and the sudden constriction of the glottis always prevents the medicine from penetrating far. We want, then, some method of applying therapeutic agents to the whole of the larynx and even to the upper part of the trachea.

Aretæus had already prescribed insufflations of powdered alum to the larynx in malignant angina, and it must be confessed that at the present day, this medicine, which has been introduced by M. Bretonneau of Tours, is one of the most powerful agents we have, to check the extension of false membranes from the pharynx into the air passages.—Aretæus's instrument was a simple reed. M. Bretonneau used a tube with a bulb in its course, traversed by gauze. These instruments were always employed by the physician or attendants when the patients were children; the patient should make his inspirations coincide with the insufflation; still the powder may fall into the pharynx, and upon the tongue, and provoke efforts of vomiting or a spasmodic constriction of the gullet, which may defeat our object.

It appears to us much better to confide the insufflation to the patient himself. The apparatus is in fact the reed of Aretæus, a glass tube being substituted for it. This tube should be two lines in diameter, and eight or ten inches long.

Three or four grains of the powder is to be put into one end of the tube, the other extremity is to be placed as deeply in the mouth as possible.

After emptying his lungs by a strong expiration, the patient closes his lips upon the tube, and then by a quick effort of the diaphragm, takes breath rapidly.

The column of air, in traversing the tube, divides and hurries along the powder towards the pharynx, but a part, suspended in the air, penetrates the larynx and upper part of the trachea. We are advised of its having entered the larynx by fits of coughing, which the patient should repress as much as possible so as to preserve the medicine in contact with the affected tissue. These inspirations are repeated more or less frequently every day, according to the state of the larynx, the nature of the powder, and the manner in which it is borne.

We have in this manner introduced pulverulent collyria into the larynx, as easily as into the eyes. We use powdered sugar, the subnitrate of bismuth, calomel, red precipitate, the sulphate of zinc, sulphate of copper, alum, acetate of lead, and especially nitrate of silver.

Sugar and subnitrate of bismuth, may be used pure, the calomel, mixed with twelve times its weight of sugar; red precipitate, sulphates of zinc and copper, with thirty-six times their weight, alum with twice, acetate of lead with seven times its weight, and the nitrate of silver, with seventy-two, thirty-six or twenty-four times its weight of sugar. These are the proportions we generally adopt, but they may be varied ad infinitum, and must be regulated by the state of the larynx and the susceptibility of the patients.

The apothecary should be directed to prepare these powders on a porphyry slab, otherwise, small crystalline asperities remain, which act as irritants and provoke repeated efforts of coughing, which do not allow the patient to retain the powder.

When the laryngeal affection is not serious, we use the subnitrate of bismuth. Observation XXVI proves its efficacy, even where the disease from its commencement was owing to crude tubercles in the lungs. The following case will afford further evidence of the innocuity and utility of this substance.

OBSERVATION XLIII.

Scrofulous constitution.—Apthous eruption in the mouth and throat.—Acute catarrh.—Cure.—Continued hoarseness and pain in the larynx.—Inspirations of the subnitrate of bismuth.—Rapid recovery.

Mr. d'H. while growing up, had some enlarged cervical glands,

a few of which suppurated. His whole appearance is scrofulous. At the school of Saint Cyr, where he was in 1827, he had an aphthous affection which invaded the whole of the mouth and pharynx, and continued a long while. The disease re-appeared in 1833, and was easily cured. From this time he was free from pain in the throat. At the commencement of the winter of 1835, he went hunting, took cold, became hoarse and had a pain in the larynx to which he paid no attention. The cold was cured in a few days, but the pain in the larynx continued and was accompanied with a dry cough and hoarseness. The obstinacy of this apparently slight affection induced M. d'H. to claim our attention. We directed four grains of bismuth to be taken by inspiration four times a day—five days sufficed to dissipate the cough and hoarseness. As some swelling remained in the tonsils we touched them twice with the pencil of nitrate of silver, and the cure was complete.

We use insufflations with acetate of lead, alum, the sulphates of zinc and copper, and nitrate of silver, in cases of laryngitis without ulceration, when sugar and sub-nitrate of bismuth have proved ineffectual. We always begin with alum, when we suspect the presence of swelling of the mucous membrane without a high grade of inflammation. Such was the case with the child cured of croup by tracheotomy, recorded in Obs. XV.

We consider insufflations with nitrate of silver always indicated, not only when there is a simple erythema of the mucous membrane, but even when erosions or ulcerations exist; it is the article we generally use. The insufflation is made twice or thrice a week, or even every night, according to the susceptibility of the larynx, and strength of the powder.

We never use calomel and red precipitate, which are so powerful in chronic, syphilitic, or other ulcerations, except when we have reason to believe that ulcerations exist in the mucous membrane. Such was our diagnosis with Mme. G., Obs. XXXIX. But we should make one important remark in regard to these medicines. Practitioners have no doubt observed that when calomel or red precipitate mixed with sugar, in the proportions above mentioned, is blown into the eyes, a slight irritation follows, which lasts some hours, and if the insufflation be repeated two or three times a day, an acute phlegmasia will ensue. The same holds with the indiscriminate use of mercurial unguents.

What we see occurring in the ophthalmic, occurs equally in the laryngeal mucous membrane. We therefore, at first, only advise two or three applications a week; experience has proved, that the symptoms grow worse if they be repeated once or twice a day at the beginning. But, as the patient becomes accustomed to them, we may and should repeat them more frequently, and also increase the proportion of the mercurials in the powder.

We repeat, we advise mercurial insufflations in laryngeal phthisis, consequent upon a common inflammation, as well as in

those of a syphilitic character. They are equally applicable to both.

Mercurial medication.—A reference to the ponderous tomes on the use of mercury, and an impartial examination of the cases published to prove its efficacy, will convince us that many of the most acute and serious inflammations, many chronic engorgements and ulcerations in various situations, have been cured by this class of remedies; and, perhaps, their chief efficacy in syphilitic affections depends upon their power of modifying the general, and, consequently, the local condition of the organism, rather than upon any specific virtue, as many of our cotemporaries have contended.

Living in a country where mercury is given profusely, and, we may add, with little discretion, we have had an opportunity of witnessing its effects on most diseases. In this way, chance has, perhaps, shown, that the mercurial plan has often effected cures in laryngeal phthisis, when so far advanced that no hope of recovery was entertained. M. Pravas, in his thesis on laryngeal phthisis, in 1824, called the attention of the profession to this important point of therapeutics. The four following cases will impress our readers better than any explanations.

OBSERVATION XLIV.

Hoarseness for fifteen years.—Coryza, with scurfy secretions, for five years.—Intense cough.—Croup.—Fever.—Emaciation.—Complete aphonia.—No signs of tubercle.—Mercurial treatment.—Cure.—Relapse.—Treatment resumed.—Effectual cure.

Mrs. B—— is thirty-four years old; she married at eighteen, prior to which she had enjoyed excellent health. Her husband was a libertine, and debauched in his habits. Still, she never experienced the least leucorrhœal discharge, nor the slightest symptom of disease in the parts. Could she have had a chancre at the neck of the uterus? It is impossible to say.

Shortly after her marriage, when eighteen and a half years old, she travelled to England, where she contracted what a physician of that country called a disease of the liver; she was treated with large doses of calomel, and in six months her hair and eyelashes fell off entirely; about the same time she began to have pains in the throat and ear, which were exacerbated at the menstrual period. From this period, the voice, which had been sweet and sonorous, occasionally became hoarse, especially during the heat of summer.

Nine years afterwards, in 1829, she felt lancinating pains in the frontal sinuses, with a considerable flow of mucus from the nose, then loss of smell, permanent coryza, swelling of the nose, scurfs, superficial ulcerations, and fœtor. The olfactory membrane was a bright red.

Sometimes the coryza was moderated, when active inflammation occurred, and the throat, nose, larynx, and intestines were successively and separately affected.

In 1831, there was complete aphonia, which lasted two months and a half, accompanied with pain in the laryngeal region, and decided remission in the coryza. From this time the voice was always nearly extinct; it became hoarse again whenever the inflammation of the nose grew worse.

In January, 1835, after the fatigue of a round of balls, while dressing for an assembly, Mrs. B. was seized with great oppression, which rapidly increased; the orthopnoea soon became extreme, repeated fits of croupy cough occurred, and in four hours she had all the symptoms of fully developed croup.

Dr. J., her usual attendant, recognised acute laryngitis, or rather, what has been improperly considered œdema of the glottis, and controlled the alarming symptoms by applying leeches to the neck, sinapisms and bleeding.

The voice was now completely lost; the larynx painful. We were called in consultation, in the end of April, 1835.

The character of the disease of the nose, the scurfy secretion constantly arising from it, the nearly permanent pain in the throat, the falling off of the hair fifteen years previously, and, above all, the bad habits of the husband, induced us to believe it was a syphilitic affection that had never been revealed by a local symptom. The case was becoming urgent; there was constant cough, frequent fever, and emaciation; in a word, phthisis seemed advancing.

Still, the thorax presented no abnormal sounds. We determined to employ a local and general mercurial course.

Every third day the patient took a bath, in which half an ounce of corrosive sublimate had been dissolved. Thrice a day she inspired into the nostrils a powder composed of two drams of sugar and twelve grains of calomel and red oxide of mercury.

After pursuing this plan for two months the cough ceased, the disease of the nose was entirely dissipated, the voice re-established, embonpoint increased, and every thing went on well until the beginning of the winter of 1835 and 1836, when the voice was altered, but the symptoms again disappeared in a few days, after touching the pharynx and upper part of the larynx with a solution of nitrate of silver, and insufflating a little sugar and calomel, at the same time that some baths of the bi-chloride were administered.

OBSERVATION XLV.

Dr. Thomann has published the history of a laryngeal phthisis that was successfully treated.

A miller,¹ aged thirty-three, enjoying good health, though not robust, fell twenty-four feet with a sack of meal on his shoulder. His thorax struck a log of wood, and he was senseless for three or four minutes. When he recovered, he continued three or four

¹ Annales Instituti Medico-clinici Wirceburgensis, 1799.

hours in a state of great anxiety, with a violent cough, spitting blood, at first bright, afterwards black and grumous. Cold lotions were applied to the head and chest, and he soon felt a pain in the thorax, which was increased by respiration and pressure; this passed off in about nine days, and he felt no other inconvenience than lassitude. But, after this, his voice was gradually lost, so that he could only speak in a very low tone. He came to the hospital of Wurtzburg on the 15th of September, 1799, when he was unable to utter a word distinctly; he coughed badly, and expectorated viscid and purulent matter.

Little ulcers, of a lardaceous appearance, were found in the gullet; he complained of lassitude in his limbs, of emaciation, and of a slight pain in the laryngeal region, which was increased by deglutition. Gentle pressure caused a sound like that of a fracture of the hyoid bone, or of a cartilage; the cough was increased by it, and the patient felt as though there was a foreign body in the larynx. The pulse was feeble and frequent; the other functions were well performed, and there was no symptom of pulmonary phthisis. Thomann prescribed a powder composed of henbane, golden sulphuret of antimony, and sugar, to be taken in three doses during the day; and a decoction of lichen islandicus for drink. The diet was mildly nourishing, on account of the patient's debility.

From the day of his entrance until the 18th there was no change in the symptoms. The same powder¹ was continued, the whole dose being given, and wine and water for drink, to which two spoonfuls of the following mixture were added:—Decoction of cinchona f ʒviij., honey f ʒj.

This treatment was continued until the 24th, without much improvement. A blister was then applied around the neck, and a mixture of infusion of the flowers of arnica, extract of cinchona, and honey.

These means having been continued until the 1st of October, the voice was still suppressed, but the cough and lassitude had disappeared. The embonpoint returned, and there was less difficulty in respiration. Calomel, with opium and sugar, were given to cure the ulcers of the throat, though there was no symptom of syphilis. The neck was anointed with camphorated volatile liniment.

On the 8th of October, the ulcerations presented a more favourable aspect, and daily progressed towards a cure; on the 15th they were contracted, and on the 20th entirely cured; the voice was more distinct, and the other functions well performed. On the 22d, the patient left the hospital in a state of convalescence; he resumed his laborious occupations, the voice gradually regained its natural tone, and there was no relapse.

¹ We are left to conjecture the dose.—*Translator.*

OBSERVATION XLV. bis.¹

A baker, forty years old, who was of small stature, thin, and very irascible, and had never suffered any serious indisposition, in the winter of 1815 took a journey, during which he was much exposed to wet and cold, and in 1816 was much affected with indisposition. When M. Henning saw the patient he had a very hoarse voice; acute pain in the throat; almost constant cough and irritation, with a sense of heat and pricking in the œsophagus; there was also insomnolence, anxiety, difficulty of swallowing solids, and, five or six times a day, a transient lancinating pain in the right cheek above the zygomatic bone. This pain passed to the pharynx, becoming more violent, and causing a violent attack of coughing. There was constant dryness of the throat and burning fever. After the appearance of these symptoms an inflammation of the joints, with pain and swelling, had entirely disappeared. On examining the mouth nothing was discovered but a bright redness behind the palate. The neck was decidedly swelled about the thyroid gland, and when this part was touched, it was found better than the neighbouring region, and the patient felt acute pain extending into the trachea; and if he made an effort of deglutition at this time, all the parts interested in the function were called into action, and there was strong pulsation of the arteries. Nothing was observed in the neuralgic cheek; all the buccal cavity, especially near the epiglottis, was covered with viscid mucus; the pulse beat 100 in a minute. M. Henning recognised in all these symptoms an inflammation of the larynx, in which the commencement of the œsophagus participated; and, as it had lasted nearly three months, it had greatly enfeebled the patient. Eight leeches were immediately applied to the neighbourhood of the larynx, and followed by frictions of equal parts of volatile liniment and mercurial ointment, which were repeated every two hours, and after each application the surface was covered with an emollient poultice. A dose of nitre was taken internally. The cheek was similarly rubbed, and pediluvia were frequently used, in which elder and camomile flowers had been steeped. Two days of this treatment had effected no melioration, and the patient continued constipated. A blister was applied between the shoulders, an enema was administered, and as the pulse continued the same, leeches were applied to the arms and calves of the legs. Abundant sweats, and improvement of all the symptoms followed. Calomel, and extract of aconite were administered, and afterwards camphor and opium. All the symptoms of inflammation of the larynx ceased, and the facial pain alone remained, and even increased in frequency and intensity. It would be useless to repeat all the means that were unsuccessfully employed to combat it. Some time afterwards, the

¹ Bibliothèque Médicale, tom. lxxix.

patient died suddenly of apoplexy, and we could not obtain permission to examine the body.

We are here presented with a phlegmasia, occupying the mucous membrane of the larynx, trachea, pharynx, and œsophagus. The mercurial frictions were probably used because of the attendant neuralgia. The history of the treatment clearly proves that no appreciable benefit was derived from the local bleedings. The first application of leeches to the neck diminished none of the symptoms. No melioration was observed until the mercury began to act upon the system. We cannot believe that the leeches applied to the limbs could have diminished the erethism; general bleeding would have been better calculated to fulfil this indication.

OBSERVATION XLVI.¹

Chronic laryngitis after a sharp cry—Hæmoptyses—Slight pricking pain in the larynx—Alteration of the voice—Seton—Mercurials—Strict silence—Emollient fumigations—Decided improvement—Mineral waters of Mt. d'Or—Cure.

In June, 1811, Madame C. lost an only and darling son; in her despair she uttered so shrill a cry that she felt something *tear* in her throat. From this epoch she had hæmoptyses in the mornings; at the moment of waking she felt a little mass separate from the painful point, this was expectorated with some drops of blood. At the lower part of the larynx, there was a constant pricking sensation, which induced her to place her hand to the part. These symptoms continued without much increase until the summer of 1813, when, being one day overheated by a ride on horseback, she spat much blood at intervals; the pain was more acute, and was aggravated by spiced food, or by food too hot or too cold. She felt as though there was an open wound. As the disease was advancing, her husband, from whom she had long concealed her sufferings, determined to consult a physician; but, whether indifferent to her lot, she had not given a correct statement of her condition, or the physician did not pay sufficient attention to it, the disease was mistaken. Tonics and stimulants were prescribed, such as wine of cinchona, and the concentrated essences of meat, which exasperated all the symptoms. She had very acute sympathetic pains in the superior extremities and in the back, her voice was altered and the fever continued. A second physician prognosticated that she had reached the last stage of pulmonary phthisis. Mr. C., being justly alarmed, brought his wife to Paris, that she might enjoy the advice of the most celebrated men. Dr. Itard, to whom he was introduced, immediately recognised the character of the disease, which he judged very serious from its duration, the emaciation, and the extreme debility of the patient; he called Pro-

¹ Pravaz, Recherches pour servir à l'Histoire de la Phthisie Laryngée. Thèse, Paris, 1824, 4to.

fessor Hallé in consultation, who made an equally unfavourable prognosis. It was agreed that little moxas should be burnt in the neighbourhood of the painful point.

M. Itard, who continued to take charge of the case, had already applied a pitch plaster, sprinkled with tartar emetic, with the intention of exciting revulsive action. The moxas, which produced little effect, were followed by a seton, which was worn a year. Various mercurial preparations were long employed to combat a lymphatic predisposition of the system. Soothing and mild regimen was prescribed, and silence recommended; to these means were added inspirations of emollient vapours. The patient shut herself up in a large closet every morning, so arranged that she could read while breathing the vapour of a quart of milk, produced by the heat of a spirit-lamp. Leaving this sort of *stove*, she passed into a moist atmosphere and mild temperature in her chamber, produced by boiling the flowers of marsh mallows, violets, and other mucilaginous plants. If she left this, she took care to breathe from a retort with two tubulatures, in which was a mixture of ether and balsam of tolu, so arranged that the air should be impregnated with the medicines. When the symptoms of irritation had disappeared, aromatic fumigations were prescribed, procured from the combustion of balsam of tolu, which was to be applied to the throat for some moments. This rational treatment, seconded by the most delicate offices of friendship and conjugal affection, induced a considerable amendment in all the symptoms. M. Itard thought that the thermal waters of Mont d'Or might suit the patient and conduce to her convalescence; she was therefore sent in the month of May, to Clermont, to accustom herself to the mountain air. She still spat some blood, but this symptom disappeared while using the waters. She regained her embonpoint and was cured. A little sensibility of the larynx remained; and for some months after her return, she continued to sleep in a very clean stable. She was next year sent back to Mont d'Or, to confirm the happy cure, which has continued permanent.

We shall cite, hereafter, some observations in which laryngeal phthisis, so far advanced that tracheotomy was deemed necessary, has been cured by an active mercurial treatment, even when the patients had no syphilitic taint.

How does the mercury act in these cases? By what therapeutic avenues can it modify so serious alterations as those we usually find? We shall not attempt to answer, confident that we should only hazard hypotheses which a thorough investigation might not support.

Iodine.—The same will not hold of the action of iodine, which, if no better known than that of mercury, at least produces more constant effects, that we may compare with analogous results observed in other parts of the economy. We see large doses of tincture of iodine cure secondary symptoms of syphilis, resolve bony tumours, glandular engorgements, &c. &c. Its most striking

effects are the atrophy of indurated and sound tissues, therefore it is not extraordinary that this medicine should also discuss chronic engorgements of the larynx. This article was rather spoken of than tried by the Germans, and has only been used by us in laryngeal phthisis; once without success, at another time with decided advantage.

OBSERVATION XLVII.

A locksmith, living in Paris, came to consult us, two years ago, for a serious affection of the pharynx and larynx. He told us that he had had syphilis, which was followed by angina. He then consulted M. Biett who prescribed pills of the proto-iodide of mercury; and after this treatment all the syphilitic symptoms disappeared, leaving only a great susceptibility of the pharyngeal mucous membrane. The pains soon became more acute and were extended to the larynx; these symptoms having alarmed him he again consulted M. Biett, who advised a second mercurial course, but without advantage. M. Marjolin, also thought the disease had a syphilitic origin, and various mercurials, and sudorifics were vainly administered. M. X. then came to claim our care. The tonsils, the veil of the palate, and the uvula were much swelled and of a bright red; the epiglottis, which was plainly seen when the tongue was depressed, was very red and much tumefied. Deglutition was painful; there was a sense of burning in the larynx when M. X. ate or spoke. The voice was not much altered.

We began by cauterising the tonsils and epiglottis with nitrate of silver, twice a week. This simple and easy treatment dispersed the swelling and redness of the gullet in one month, but the larynx continued as bad as ever. We were about introducing the caustic into the entrance of the glottis, or directing inspirations of the powder of alum, when it occurred to us to try iodine. We prescribed the tincture in doses of ten drops night and morning, in half a glass of sweetened water. In one week there was decided improvement, in another the patient seemed cured; and has continued to be so. We have not had sufficient experience in the use of this medicine to speak confidently of its virtues from an isolated fact, and should not have mentioned it, had not the journals frequently adverted to its efficacy in the treatment of chronic diseases of the pharynx and larynx.

Sulphur; sulphurous mineral waters. Many physicians, chiefly those who have embraced the opinions of the new French school, consider as almost fabulous the cases of cure reported by Bordeu and many others, effected by the waters of Bonnes and Canterets. But they who have studied the effects of the Pyrenean waters upon the spot, they who have often sent to them their patients, evidently attacked with pulmonary tubercles, will acknowledge the admirable cures which have been annually effected by this powerful means. Therefore we should never neglect the use of sul-

phurous mineral waters, whether natural or artificial, in the treatment of various forms of laryngeal phthisis. Although secondary, they may unaided effect a cure in the early stages of the disease. We select the following case from a host of others.

OBSERVATION XLVIII.

Hoarseness.—Aphonia.—Gargles of alum without advantage.—Milk diet and Bonnes waters.—Cure.—Relapse after imprudence.—Return to milk diet and Bonnes waters.—Cure in five weeks.

Mr. D. captain of artillery, thirty-four years old, was born of tuberculous parents.

His voice is rather grave, and not very strong, except in the high notes.

He attended balls and soirées and was much in the world, for three months, when he perceived that his voice was hoarse, and complete aphonia soon followed.¹ There was no expectoration or pain in the larynx, and the general health continued excellent, only he was extremely fatigued by the great efforts that were necessary to make himself understood.

There was nothing to induce a suspicion of disease in his lungs, he had never had hæmoptysis, catarrhs, or angina.

He used a gargle of one ounce of alum to a pound of water for a fortnight without amendment.

Milk diet was then prescribed with some advantage; to this was added one bottle of Bonnes waters per day. This soon effected an improvement and a complete cure at the end of two months.

He went into Normandy to spend the summer; one day, after having taken a very hot bath, he walked on the sea shore, and returned to Paris with a violent pharyngeal angina and complete aphonia. He was again put upon the use of warm milk.

Tartar emetic ointment was rubbed into the neck morning and night; the Bonnes waters were resumed, and after five weeks of this treatment, his voice had regained its natural tone.

A curious remark, which confirms what physiologists say of the intimate relation which exists between the organs of generation and those of phonation, is, that M. D. was always better when his wife was unwell, and he abstained from intercourse.

Treatment by topical applications to the pharynx.—We have seen that chronic inflammation of the larynx, and laryngeal phthisis resulting therefrom, have originated from a phlegmasia of the mucous membrane of the tonsils and veil of the palate, and sometimes even the simple tumefaction and procidence of the uvula. Caries of one or two teeth often keeps up a constant fluxion to the throat and consequently chronic laryngitis. One of our greatest singers, Madame Mainville-Fodor, is said to have lost her voice in this way.

¹ It should be mentioned that he had thrown aside his flannel.

It would seem that in this case, the inflammation is propagated by continuity of tissue, as we see vaginal catarrh succeed inflammation or ulceration of the neck of the uterus; or, a fistulous ulcer from caries becoming the cause of chronic inflammation and induration of the surrounding cellular tissue. In this case, the cure of the original disease, if we may be allowed the expression, dissipates the secondary symptoms. Thus, the excision of the uvula, or tonsils, and the extraction of a tooth, may effect the cure of incipient laryngeal phthisis, caused by the disease of the throat.

Bennati, who had some success and great reputation in the treatment of laryngeal affections, attached great importance to topical applications to the tonsils and base of the tongue. He prescribed almost exclusively aluminous gargles.

The solution should be strong, a scruple, half a dram, and even a dram to the ounce of water. The gargles should be frequently repeated every day. Bennati employed sulphate of zinc in the same proportions.

We prefer the nitrate of silver. When the pharynx and larynx are simultaneously affected, we touch the tonsils and veil of the palate two or three times a week with a stick of nitrate of silver, with a sponge soaked in a saturated solution, or we introduce with the finger, a powder composed of six or eight grains of the nitrate of silver to a dram of sugar candy. A saturated solution of the sulphate of copper, or zinc, or of corrosive sublimate, equally answers this therapeutic indication.

But we may combat laryngitis by these means with equal success, even when there is no chronic phlegmasia of the mucous membrane of the fauces. It is difficult to explain how an application to the tonsils can modify a laryngeal phlegmasia, but such is the fact, and analogy shows us that such a result ought to follow. In the beginning of this chapter, we have seen that cauterisation of the superior part of the larynx cured inflammation which was often seated beyond the immediate influence of the caustic; it is not more surprising that cauterisation of the base of the epiglottis and tonsils should produce the same results.

Physicians who treat diseases of the ear well know that cauterisation of the tonsils alone sometimes effects a cure of catarrh of the Eustachian tube; it is not more remarkable that the same remedy should have a parallel influence upon catarrh of the larynx.

It may be said that this is done by revulsion, and that the irritant acts as a vesicatory, and concentrates at this point the inflammatory congestion; which is not an improbable explanation; we must admit, however, that the organic modification impressed upon the tonsil, is transmitted to the mucous membrane of the ear and larynx: This is a question of little importance which we shall not attempt to decide.

Treatment of syphilitic laryngeal phthisis.—When we have every reason to suspect the syphilitic character of a case of laryn-

geal phthisis, many indications are presented according to the alterations of the pharynx, which indeed sometimes claim our principal attention, provided the inflammation and swelling of the mucous membrane of the air passages be owing to an extension of that in the back of the mouth; in the same way that the inflammatory procidence of the uvula is often evidently caused by an organic alteration of the nasal fossæ or of the tonsils.

If then this form of laryngeal phthisis is only an extension of the pharyngeal inflammation, we should always direct our remedies, whether general or local, to this affection.

But when laryngeal phthisis is idiopathic, and the organic lesion confined to the larynx, besides the means generally indicated to combat the usual inflammatory symptoms, we should also attend to touching the throat with a solution of the bichloride of mercury, and to inspirations of calomel and red precipitate in the proportions we have specified.—See Observations XX, XXI, XLIX, XLIX bis, XLIX ter.

The general treatment is just what all enlightened physicians would advise in constitutional venereal disease.

The five following observations, which we select from many analogous cases, will show the happy influence of anti-syphilitic treatment in this affection.

The first three, and Nos. XX and XXI, which are taken from our own practice, will give our readers an idea of the treatment we have adopted in similar cases.

OBSERVATION XLIX.

Syphilitic laryngeal phthisis.

Mr. P. aged fifty years, had contracted syphilitic chancres in 1828. He was cured by a short, local, and mercurial treatment. A year afterwards, without having been again exposed to contagion, he had violent pain in the throat. His physician recognised an ulcerative syphilitic angina, and prescribed a thorough course of mercury. The disease was cured, but the throat was soon sore again. It was filled with hard rounded vegetations; the veil of the palate adhered to the posterior and superior part of the pharynx, the voice was altered, became hoarse, was afterwards extinct, and at last habitual dyspnœa supervened.

These alarming symptoms were combated by the local application of nitrate of mercury,¹ (*nitrate acide de mercure*,) by all sorts of gargles, by repeated applications of leeches, by blisters *loco dolenti*, by seton to the muchæ, and internally by repeated mer-

¹ This is supposed to be a solution of nitrate of mercury in nitric acid, highly recommended by MM. Cloquet and Recamier as a caustic in obstinate syphilitic and scrofulous ulcers, &c. Vide Ratier's Formulary, p. 231, et seq.

curials, by the tisan of Feltz,¹ by the biscuits of Ollivier, and by the muriate of gold. A temporary melioration was obtained during the summer; but the symptoms returned with new force in the winter, and from the beginning of 1835 M. P. obtained no relief, and seemed likely to die of asphyxia. In the month of May he consulted M. Marjolin, who sent him to us.

We have already mentioned the appearances presented by opening the mouth. But by introducing the finger to the epiglottis a mass of irregular and uneven tumours was felt in the larynx and almost closing the œsophagus. The sensation received was like that of a deeply ulcerated uterine cancer.

The voice was extinct, but became hoarse and cavernous when he made great efforts. Respiration was so very laborious that when he reached our office, (which is on the second floor,) he had to wait five minutes to take breath before he could speak. The air, as it passed the larynx, produced a sharp hissing in the inspiration; the expiration, though not braying, was painful, so that the expiratory muscles were called into active exercise.

No trace of pulmonary lesion was discovered in the sounds of the thorax. The patient, who was naturally fat and florid, had lost more than twenty pounds, was weak, and had no appetite.

Still we did not despair of effecting a cure, and directed the following course:—

1st. To avoid, as much as possible, speaking, coughing, or spitting.

2d. To avoid exposure to the morning and evening air.

3d. Every four days to cauterise the pharynx and upper part of the larynx, either with a solution of nitrate of mercury, of nitrate of silver, or with chloride of gold, dissolved in nitro-muriatic acid.

4th. To use a gargle daily of a saturated solution of alum.

5th. To insufflate the following powder twice a day:—

℞. Hydr. chlor. mit. ʒij.
Pulv. sacch. crystal. ʒss. M.

To be followed in five minutes by a gargle of water.

¹ *Tisan of Feltz.*

℞. Radicis sarsap. concisæ ʒiij.
Ichthyocollæ ʒss.
Pulv. antim. crud. ʒiv.
Aq. fontanæ ℥vj. M.

Boil down to one half; strain. Take half a pound three times a day.

Formula for the Tisan.

℞. Rad. sarsaparil. ʒij.
Rad. chinæ ʒj.
Sulphur. antimon. ʒiv.
Ichthyocol.
Cort. buxi
Cort. hederæ aa. ʒiss.
Aq. puræ ℥xij. M.

Enclose the sulphuret of antimony in a linen bag, and boil the whole until half the liquor has evaporated; strain through a sieve, allow it to settle and decant, dissolve in it hydr. bichlor. grs. iij. Dose: a pint a day.

6th. To use fumigations of cinnabar as follows:—throw a small portion of powdered cinnabar on a hot chafing dish, and receive the vapour in a funnel placed in the mouth; this to be repeated five or six times successively if it caused no pulmonary irritation.

7th. Take Bonnes water, either in Paris or in the Pyrenees.

Our patient has been at Paris for two years, with re-established health. Before publishing this case we wished to have some further account, and we therefore present the statement of his physician, M. Collin.

“Respected sir,—Mr. P. is doing well; the cough, expectoration, and difficulty of deglutition have ceased; his rotundity of figure and strength have returned; and, except the change in the quality of his voice, which he has had seven years, there is no trace of the disease.”

This cure, which is truly remarkable, considering the gravity of the organic derangements, recalls the following relation of Morgagni, Letter 44, § 15.

“Senex decrepitus lue venereâ plurimos jam annos malè mulcatus, ut quæ loqueretur vix intelligeres, urinæ autem difficultate, et gonorrhœâ denique à duodecim annis laboraret, his malis, et ipsâ ætate, lentè confectus, vitâ cesserat ante medium Januarium anni 1717. Cadaveris, quasdam partes in nosocomio dissecantes, hæc quæ ad propositos morbos spectarent, animadvertimus. Uvula, cujus pars deerat, linguæ superior postrema superficies, et annexa olim per ligamenta epiglottidis cartilago ita erant cicatricosæ, ut nihil magis. Itaque ea cartilago inæqualiter contracta, in triangularem propemodùm veraticem desinebat, multò caninæ similior quam humanæ. Quin vitium in laryngem reliquam, et huic proximum asperæ arteriæ truncum se propagabat: eratque arytenoidum altera quasi luxata, non compari parallela. Intra illam autem arteriam inæquales magnique prominebant quasi lacerti, &c.”

OBSERVATION XLIX bis.

Thirty-four years of age—Syphilitic disease for eight years—Mercurial treatment—Cure—Six years afterward, angina, at first in the pharynx, then in the larynx; cough, aphonia, pain in the larynx—Orthopnœa, mercurial treatment, salivation—Rapid recovery.

M. aged thirty-four, a lace maker, came to the hospital on the 19th of July, 1836.

In 1828 she had the venereal disease, with chancres, that disappeared in one month, and buboes that lasted three months. The treatment consisted in the use of the liquor of Van Sweiten, which was used six weeks. The cure seemed complete until the 12th of November, 1834, when she had a happy accouchement.

The fifth day after delivery a slight pharyngeal angina occurred, which lasted a month, and was followed by pricking pain in the larynx, and frequent fits of cough. At the same time there was

acute pain in the larynx, and a hoarseness which, after a month, became complete aphonia. All these symptoms continued.

In the course of May, 1835, she was bled four times, seventy-five leeches were successively applied to the throat, and three blisters in front and at the sides of the larynx; these measures effected nothing, the patient even affirmed that the cough became more frequent and severe.

Three months after birth, the infant had pustules on the genitals and nates, which the physician pronounced syphilitic.

The mother and child were admitted into the venereal hospital, where M. Ricord confirmed the diagnosis that had been made of the child's disease. The pustules were powdered with calomel; lotions of the chloride of soda were employed. The cure was effected in three weeks, and from that time he continued well. The mother employed no treatment at this time.

Present state, (July 19, 1836.) Complete aphonia for twenty months. When she speaks or takes breath, a hissing sound is heard in the larynx, as though the air passage was too small. Walking, even slowly, occasions great difficulty in breathing, and considerable laryngeal hissing.

The region of the larynx is rather painful; cough frequent; expectoration ropy; mucus clear. No pain in the pharynx; no difficulty of deglutition.

For three months the neck has been swollen, so that she has been obliged to lengthen her collar three inches.

The thorax offers no sign of disease. The general health appears pretty good, but there is constantly some fever.

Treatment.—Twice a day the neck is to be rubbed with Neapolitan ointment¹ eight parts, extract of belladonna two parts.

July 22d. There is some amendment; the frictions are laid aside. We prescribed, morning and night, a pill of one-sixteenth of a grain of proto-iodide of mercury; frictions to the arms and thighs, with four drams of Neapolitan ointment; a bath, with an ounce of corrosive sublimate.

25th. The cough has almost ceased. The gums begin to be touched. The frictions are discontinued.

26th. The patient can walk without oppression: the inflammation of the gums induces us to lay aside the active mercurial treatment: the pills alone are to be continued.

27th. She spoke for half an hour without getting out of breath; without cough or wheezing. Same treatment.

28th. The voice is clearer; at our desire she gave a strong and clear shout. She could walk easily without losing breath; the

¹ Neapolitan ointment; or, *mild mercurial ointment*.

℞. Adipis suillæ, ℥j.
Hydrargyr. pur. ℥ij. M.

Ratier's Formulary, p. 108.

cough has entirely disappeared; salivation continues. Same treatment.

29th. Same state. Two ounces of castor oil.

August 1st. There is a diminution of one inch in the circumference of her neck. Yesterday she could run up one flight of stairs without suffering oppression.

The infant has no symptom that would induce a suspicion of a syphilitic taint.

5th. The voice is quite natural.

7th. Every thing looks well, except the gums, which continue painful. Before the end of the month, she left the hospital perfectly cured.

OBSERVATION XLIX. ter.

Chronic disease of the larynx, probably syphilitic.

Mlle. Basinet, aged twenty-four years, was born at St. Ménéhould, where she has since lived. When seven years old, she had an exostosis on the left leg, which she attributed to a blow. Enlargement of the bone, without suppuration or redness of the skin, continued seven years. The pain was worse at night than in the daytime: she remembers, that as soon as she was in bed she had to get up again, because the pain was so acute.

At fourteen she menstruated, and the pain ceased; but the exostosis continued. The only treatment consisted of a hemlock plaster, which she wore for a year without benefit.

Excepting the exostosis, which was not painful, she enjoyed good health until she was twenty-two, when she had an obstinate chronic diarrhœa for two years; this was followed by a pain in the throat, which continued eighteen months, by spells of a month, with intervals of a fortnight, during which time no treatment was addressed to it.

In December, 1833, it became permanent, and much more violent. She saw no physician, nor consented to adopt any treatment until April 10th, 1834. There was then a round ulceration of the palate. A month later, there was a new ulceration in the veil of the palate which threatened its complete destruction.

Alkaline chlorides, nitrate of silver, and iodine, were prescribed without any improvement.

July 28th, 1834. She consulted another physician, who advised mercurial frictions to the neck, and touching the ulcers with creosote.

After pursuing this treatment for a fortnight, the gums were swelled, and so continued six months. There was a decided improvement, which lasted a fortnight, when all the symptoms returned with increased violence. She consulted another physician in November, 1834, who canterised the throat with nitrate of mercury, (*nitrate acide de mercure*;¹) after six weeks the cure was

¹ See note p. 148.

completed. No general treatment was adopted. As the menses had been suppressed for five months, preparations of iron were given, and the flow was re-established in January, 1835. The health was then very good until September. In April, the first day that she took the iron, she perceived that her voice was hoarse; this insensibly increased until December, when there was complete aphonia.

At this period deglutition was again painful, though no alteration was observed in the tonsils. She began to cough, and this symptom continued. There was also a fit of suffocation for three days which yielded to bleeding, a blister to the neck, and purgatives. She continued better for six weeks.

In May 1836, frictions of chloride of gold were applied to the tongue, which treatment was continued thirty-nine days, but it harassed the patient so much that she could not endure it any longer. The suffocation re-appeared on the 20th of June, and increased so much, that on the 18th of July she seemed likely to perish from asphyxia. The fit was calmed by bleeding and a pediluvium with hydrochloric acid. Still, the throat was touched with nitrate of silver, which only alleviated the symptoms for two days.

As the suffocation continued to increase, Dr. Carré, seeing no resource but tracheotomy, sent her to consult us in Paris, where she arrived on the 22d of July.

When she entered our office she had hissing, difficult, slow, deep respiration, and seemed to be threatened with impending asphyxia. We immediately directed her to M. Pinel's Maison de Santé at Chaillot.

23d. Same state. A pill, morning and night of an eighth of a grain of proto-iodide of mercury; friction on the thighs with four drams of double Neapolitan ointment.

24th. No change. Same treatment.

25th. Rather less difficulty of respiration, the gums begin to be painful. Same treatment. Insufflation with a powder composed of one grain of nitrate of silver and one dram of sugar. The gums to be rubbed with powdered alum.

To take a mixture of six grains of red precipitate to a dram of sugar in powder, for the disease that has existed in her nose for a year and a half. The sense of smell had been lost for a year.

26th. Same treatment. Respiration is much easier in the morning, but embarrassed in the evening, though better than it has been for five weeks.

27th. Decided improvement; deglutition much easier; the gums are more painful: same treatment.

28th. The gums are rather less swollen than yesterday, the tonsils are rather painful. The hissing in the larynx is even less than yesterday. Continue the same treatment.

30th. Respiration has been completely re-established since yesterday morning; the hissing has entirely ceased. The patient can swallow liquids without coughing, which she could not do heretofore.

fore. The gums are much swollen and very painful. No salivation. No cough since the 28th; an occasional hoarse sound for a few minutes. Stop the frictions, continue the pills and insufflations.

August 1st. The nostrils are almost free. Respiration is easy, even during violent exercise. The salivation decreases, though the gums are still painful.

The exostosis has diminished. Continue the insufflations and pills.

10th. The proto-iodide has been continued alone. The gums are not swelled, the tongue is no longer painful. For the last four days, especially in the mornings, there has been occasional phonation, which was dull and hoarse, but it did not last long, particularly when the patient endeavoured to increase its intensity. There is no more oppression, and the menstrual flux appeared yesterday at two o'clock. Continue the pills; make one insufflation to-day.

28th. No change, except that the cough and expectoration have disappeared for a week; we cauterised the epiglottis and upper part of the larynx with a solution of the nitrate of silver.

One day, while performing this operation, and depressing the tongue with a spoon, we discovered that the epiglottis was deeply cleft from top to bottom by a considerable ulcer, it was crenated on its edges like a cock's comb. The ulcer, if not cured, was at least in a very fair way; we cauterised it repeatedly.

Continue the pills of proto-iodide.

There is no pain whatever in deglutition. She no longer swallows awry, and considers herself cured. Still we advised her to persist in the use of the mercurials. It is not long since we heard from her that she continued to do well.

OBSERVATION L.¹

Hoarseness.—Pricking in the larynx, then pain in this organ.—Purulent sputa.—Antiphlogistic treatment.—Improvement.—Relapse.—Appearance of syphilitic pustules.—Mercurial treatment.—Cure.

Adelaide G., aged thirty-seven, of a lymphatic temperament, after delivery, fifteen months ago, experienced hoarseness, prickings in the larynx, dysphagia, anorexia and cough. Since then, these symptoms have frequently appeared and disappeared.

In the spring of 1820, the pain became fixed, the cough habitual, headach almost constant. Constipation obstinate, and abundant expectoration of sero-purulent sputa. The pharynx seemed inflamed and the epiglottis ulcerated.

M. Cloquet administered purgatives, mustard pediluvia, emollient gargles, refreshing drinks. Some local bleedings were prac-

¹ Papillon, *Recherches sur la phthisie laryngée*. Paris, 19 Mai, 1821, in 4to.

tised, and ten blisters were successively applied in front of the neck. Rigid diet.

There was great improvement after five weeks of this treatment; the pain, cough, dysphagia and anorexia ceased. Expectoration was less abundant and not more purulent; the epiglottis resumed its natural aspect; but the hoarseness continued, and night sweats prevented the re-establishment of her strength.

She left the hospital, but, eight days afterwards, all the symptoms re-appeared, and she returned. Pervigilium and hectic fever were added to her other sufferings. M. Fonquier, who now had charge of the hospital, used the same means that M. Cloquet had prescribed, but all efforts were fruitless.

After eight months, the vulva and other parts of the body presented syphilitic pustules. Fractional doses of mercurial ointment were then administered internally, and at the end of three months the patient left the hospital perfectly cured.

OBSERVATION LI.¹

Pain in the larynx—Hoarseness—Dyspnœa, then aphonia—Dysphagia—Emollient treatment without success—Threatened suffocation—Tracheotomy—Cure—Relapse after ten days—Appearance of a syphilitic pustule—Mercurial treatment—Lasting cure.

Emily Bailly, a dressmaker, aged twenty-three years, was admitted into the Hôpital de la Charité, on the 31st of December, 1821. She had long enjoyed good health, except some irregularities in menstruation. But for some years she has had a dry cough, which became more troublesome whenever she took unwonted exercise. Three months have elapsed since the commencement of the disease, which obliged her to come to the hospital. She says that, after sleeping by an open window, she awoke with considerable hoarseness and fever. She used an infusion of mallows and gum-water. The hoarseness and catarrhal symptoms disappeared after fifteen days of this treatment, only the voice was hard, and soon after became weak. It should be observed that she then worked on cotton fabrics. With the aphonia the cough became more frequent, and fatigued her more than before, but it was still without expectoration. At intervals there was a sense of oppression, especially on going up stairs, after active exercise, or when her mind was excited. Respiration was braying during the inspiration. Leeches and cataplasms were applied to the throat, and various other remedies employed, with some benefit. On the 30th of December, the oppression increased, sinapisms, and antispasmodics were used, and a blister applied to the front of the neck. Abundant bilious vomitings occurred, which relieved the chest and seemed to facilitate respiration; the same night some traces of blood were seen in the expectoration.

¹ Pravaz, Recherches pour servir à l'histoire de la phthisie laryngée. Paris, 6 Avril, 1824.

Hitherto the sputa have been thick and brownish. The last menstruation was on the 27th of December, and lasted two days. Since the invasion of the disease, the powers have gradually diminished; an emaciated condition had supplied the place of her usual embonpoint.

At the visit of the 1st of January, 1822, she offered the following symptoms:—Pain, referred to the sides of the neck, opposite to the great horns of the hyoid bone; slighter pain behind the sternum, and deep in the dorsal region, between the shoulders; increase of this pain when she coughs, swallows, or speaks, which last act is reduced to a whisper. Nothing was observed on the examination of the interior of the mouth, except some inequalities in the walls of the pharynx, without ulceration; respiration laborious and braying; greater facility in respiration when she is up, than when lying down; deglutition, accompanied by a sound like hiccough. Cough frequent, recurring almost every quarter of an hour, increased by drinks and efforts to speak, and producing a viscid, limpid matter, in which floated some masses of opaque mucus, streaked with blood; it was accompanied by a peculiar sound, which M. Fouquier compared to croup; so that by this character alone we should have been led to suspect an alteration of the larynx; there was pain in the ears and head; dyspnoea, amounting sometimes to suffocation, from the slightest causes; frequent, small, and hard pulse; night sweats; loss of appetite, and imperfect digestion.

For the first three days, barley water, milk, and soothing gargles were prescribed, with an opiate julep and pediluvia; suppuration was induced in the vesicated surface in front of the neck; the constipation was obstinate. On the 4th the blister was suppressed that another might be placed over the sternum; no change in the symptoms. 5th. Respiration is more difficult and hissing; constriction of the larynx; same prescription. 6th. Constipation continues, the dyspnoea increases, the larynx seems more constricted; sixteen leeches to be applied under the jaw. 7th. Bilious vomiting; some stools during the night; a grain of tartar emetic, gum water, and pediluvia were prescribed. Under this treatment, respiration became slower, easier, and less braying. There was a calm during the night. On the 8th, there was considerable oppression, pain behind the sternum, and redness of the face. The leeching was repeated; the diet consisted of four *bouillons* and a *lait de poule*; vomiting at night. 9th. The occlusion of the larynx is almost complete; inspiration is very difficult and noisy, orthopnoea, cough, extreme anxiety, and aphonia; at night, threatened suffocation and extreme agitation; all the symptoms increase. On the 10th, they had reached their greatest intensity; MM. Fouquier and Roux proposed tracheotomy, as the only resource. The trachea was scarcely opened, when a quantity of blood entered the canula, and prevented the access of the air to the lungs; the patient

fell senseless, the arteries ceased their pulsations, the countenance was pale, and the whole body cold; respiration was interrupted, the beating of the heart was no longer felt. The surgeon introduced an elastic tube into the trachea, and by repeated inspirations he succeeded in withdrawing part of the blood which obstructed the air-passages. The respiration was thus restored, and the circulation established, but the patient was still unconscious. The catheter was fixed by a riband round the neck, and the sufferer carried to bed. The rest of the day was passed with little hope; it was frequently necessary to clear the tube of viscid mucus. There were many fits of conghing. In the evening there was high fever, but respiration was less painful than before the operation.

The 11th, she had not yet recovered her consciousness; her drinks were given with a sick-cup (*biberon*). A silver canula was substituted for the elastic tube, but it gave the patient pain, and did not afford so good a passage to the air. On the 12th, the respiration was more free; she began to recognise persons around her; there was less fever; part of the air passed through the larynx; there was thirst and constipation. Gummed barley water and diet were prescribed.

The 13th and 14th, less fever; respiration easier, and more by the glottis than the canula. *Prescription*: Barley water with milk, gum water, opiate julep, *demi-crème de riz*, a *lait de poule*, and three *bouillons*.

The 15th. The wound began to contract, and no mucus passed; respiration was performed by the mouth; no more night sweats; sleep undisturbed. On the 16th, the pulse was rather frequent. The 17th, the speech was restored, when the finger was applied to the wound. 18th; pulse weaker, small, and not frequent: return of appetite: the wound is healing, and she can speak so as to be understood, without applying the finger. 19th; pulse scarcely frequent, respiration easy. 20th; some cough. 21st; scarcely any fever, constipation combated by injections: some nourishment was allowed. 22d; neither cough nor expectoration. 23d; the aphonia diminishing. After this, the pain in the throat disappeared, the strength returned, and cicatrisation progressed. 31st; very little air passed by the wound: the granulations were touched with nitrate of silver. She has appetite, the respiration is perfectly free, and she improves from day to day. On the 6th of February, the wound was nearly healed; the quantity of food was increased without any detriment. On the 14th, the fistula was closed, and the voice restored, but more dull than heretofore. She left the hospital with instructions to return occasionally, that a relapse might be observed.

Emily Bailly remained eight or ten days without any symptoms of disease: every thing induced the belief that the cure was permanent. She then came to M. Fouquier, complaining of difficulty of respiration, pain in the throat, pricking in this region, and

cough, general indisposition, and restlessness at night. She returned a second time, and as the symptoms were increasing, she was advised to come back to the hospital, which she did on the 1st of March. She then had a large pustule on the left commissure of her lips, partly ulcerated and partly covered with a crust which led to the suspicion of a syphilitic virus. Many other pustules were scattered over the scalp. From an investigation into the history of the case, it appeared that she had the venereal disease five years before, when she consulted M. Cullerier; that she had followed an appropriate treatment for some weeks, and until she supposed herself cured. These facts, in connection with the symptoms present, left no doubt of the nature of the disease, or that the laryngeal affection might be connected with it. The liquor of Van Swieten and the sudorific syrup were, therefore, administered. During the first week she was pretty well; on the 8th, she seemed to have recovered her voice partially, and the difficulty of respiration was diminished. On the 16th, the liquor and syrup were suspended on account of an increase in the cough: pills of Neapolitan ointment were substituted. This treatment seemed to suit very well at first. The pustule on the lip insensibly diminished, assumed a better aspect, and contracted. On the 18th, the voice reappeared, the oppression diminished, and there was less hissing during the inspiration.

20th. The voice was restored; there was a swelling of the right cheek, incipient salivation: twenty leeches under the jaw, cataplasms, gargles of marshmallow tea, gum potion,¹ and five *bouillons*.

22d. A purgative of manna; the ptyalism is excessive, with ulcerations in the mouth. 23d; vapour baths for the salivation. 25th; a purgative enema was added to the other remedies: the venereal symptoms had disappeared. 26th; the happy effects of the vapour bath on salivation were manifest. 28th; the swelling of the cheek had diminished. 29th; the salivation was subdued, she scarcely feels it, and on the 31st it was entirely arrested.

On the 5th of April the voice was re-established; she was able to

¹ *Gum potion.*

- ℞. Gummi acaciæ arab. grs. xvij.
 Infus. althææ comp. f ℥iv.
 Aquæ flor. aurant. ℥ij.
 Syrupi althææ f ℥ij. M.

Vid. Ratier's Formulary, Am. edit. p. 149.

Or,

- ℞. Gum. acac. ℥j.
 Aquæ f ℥ij.
 Syr. simp. ℥j.
 Aq. flor. aurant. ℥ij. M.

Vid. Ratier, p. 152.

resume the liquor of Van Swieten,¹ and the syrup of Cuisinier:² she continued to do very well. The symptoms of venereal infection and those of laryngeal alteration have disappeared. There was no cough or expectoration, no fever or sweats. Sleep was tranquil, the digestive functions resumed their activity, and her strength increased from day to day.

On the 12th of April, the menses appeared after an interval of many months. On the 13th, she would leave the hospital despite the representations which were made her of the uncertainty of her entire recovery. She promised to continue the use of mercurials for some time. Since this period, M. Truchon has frequently seen her. She has enjoyed uninterrupted good health.

Cancerous and tubercular laryngeal phthisis.—We shall not hazard any remarks upon the treatment of these species, which are evidently beyond the resources of our art. The only object we can propose, is to afford some palliation, and we are often obliged to practise tracheotomy upon the unfortunate patients, though it be only to prolong their sufferings.

Tracheotomy.—Whatever may be the form of laryngeal phthisis, when the tumefaction of the mucous membrane and submucous cellular tissue has gone so far as to prevent the entrance of a sufficient quantity of air into the lungs, death is threatened, if we do not open a passage to the air. Catheterism is the first mode which suggests itself to the mind, and Hippocrates³ proposed the introduction of tubes by the mouth. This plan was exclusively followed by physicians until Asclepiades, who first proposed the incision of the trachea, according to the method we shall presently describe.

Desault⁴ revived the plan of Hippocrates, which had fallen into disuse; but he asserts, that it is only practicable in cases of pharyngeal angina, when the inflammation has not invaded the larynx or trachea; for, besides the difficulty of introducing the tube through swollen tissues, its presence would cause an increased irritation. Boyer⁵ was therefore wrong in blaming this practice

- ¹ ℞. Hydr. bi-chloridi, grs. xvj.
Alcoholis, ℥ss.
Aquæ destillatæ, ℥j. M.

Dose, half an ounce morning and evening, in milk, gum water, or syrup.

- ² ℞. Rad. sarsaparil. concisæ
Ligni guaiaci ras. aa. ℥j.
Aquæ fontana, ℥xij.
Sacchari
Mellis albi, aa. ℥ss. M.

Dose, two to four ounces.

From *Ratier's Formulary*, Am. ed. pp. 141 and 183.

³ De Morb., lib. iii., cap. 10.

⁴ Œuvres chirurgicales, tom. ii., pag. 251.

⁵ Traité des maladies chirurgicales, troisième édition, tom. vii. pag. 127.

of Desault, without adverting to the restrictions so judiciously adopted by the surgeon of Hôtel-Dieu.

We may here introduce some reflections which will convince our readers of its inutility.

First; the anatomical arrangement of the parts, and their respective curves, do not admit the introduction, and especially the maintenance in the larynx, of any other than flexible tubes, such as those of gum elastic. The nature of the case requires prompt action, lest death by asphyxia occur. If, then, too large a tube be used, there will be an obstacle to overcome, which will require time and not force; and if the end of the catheter be detained in the glottis for two minutes only, death would inevitably follow.

The tube must be of medium calibre, (No. 10 or 12 at most,) and the respiration being performed through the eyes of the instrument, a very little mucus may obstruct it; besides, its calibre is liable to be diminished by pressure against the obstacle in the larynx, by fits of coughing or vomiting, and by efforts of deglutition. We therefore entirely reject this plan, in laryngeal phthisis, and conclude that there is no better resource than opening the air passage.

Asclepiades was the first who recommended opening the trachea in extreme cases. Believing that the cartilaginous rings would not unite when cut, he proposed a transverse incision between them. Cœlius Aurelianus, who speaks of this operation, regarded it as quite chimerical and criminal. It has now been so often successfully performed, that we are surprised at the fears it excited in the minds of the ancients.

Before our times, tracheotomy had only been performed for acute diseases of the larynx, to extract foreign bodies, or for the sake of dressing wounds of the organ.

Desault was the first who made a clear exposé of the indications for the operation in laryngeal phthisis; but he never practised it. After him, almost all the physicians who wrote on œdema of the glottis, or chronic phlegmasia of the larynx, advised it as an extreme measure. At first, the operation did not succeed, because improperly performed. We have reported sixteen cases in this work, five of which were our own: vide Obs. I, XXXI, XVIII, LVI, and LVII: the others belong to MM. Fourney, XXII; Bulliard XXXIII bis, Roux LI, Lawrence LII, Marshall LIII, Porter LIV, Goodeve LV, Ch. Bell LVIII, Senn LIX, and Purdon LX and LXI.

The first case of introduction of a sound, to remedy an obstruction of the larynx, was reported by Mr. Goodeve,¹ who cited Price, who had worn a canula ten years, though he does not inform us what surgeon had introduced it; but it must have been anterior to the operations of Lawrence and Ch. Bell, who adopted the same expedient in 1815.

¹ London Med. and Physical Journal, July, 1826.

Let us here make a few observations on the mode of operating, and on some circumstances which have occurred in our experience. We have tracheotomised seventy-eight times; seventy-three for croup and five for laryngeal plithisis; and, therefore, have had occasion to modify the procedure and instruments.

We shall say nothing of the first steps of the operation, from the division of the skin until the cartilage is laid bare; only observing, that if the ligation or torsion of arteries be demanded, there is no necessity to secure the veins. These vessels often tear under the forceps or thread; at any rate, no harm results from cutting them, unless their calibre be great, in which case they should be avoided or tied. When the trachea is denuded, a puncture is made, and the finger instantly applied. As many rings are cut, above and below with a probe-pointed bistoury, as may be deemed necessary, and the finger instantly placed over the incision to prevent the blood from flowing into the trachea. Then seizing the dilator, which we have described in the second volume of the *Journal des Connaissances*, page 4, the finger is removed, and the instrument is rapidly introduced, and opened so as to separate the lips of the wound.

The patient is made to sit up, and the canula instantly introduced. It should be long, and of a large calibre; it immediately becomes an unyielding point of compression; and if the venous hemorrhage persists, which is a frequent occurrence in adults with this disease, the wound may be plugged as much as you please, without preventing free access of air by the canula.

If, on the other hand, we should wait for the venous hemorrhage to stop before we introduced the canula, it would be necessary to tie many vessels, which would require much time, and be almost impracticable; and in the mean time, an increase of the symptoms of asphyxia, and consequent continuance of venous hemorrhage, which is no doubt chiefly caused by the difficulty of respiration.

When all the accidents have been met, and the patient has expectorated all the blood that had got into the bronchia, he should be placed on his bed, the lips of the wound should be brought together above the canula and secured with adhesive straps, and a roller pierced with a hole for the canula.

The mucus which will accumulate in the canula must be removed; this is easily effected by a little horse-hair swab. The canula must be changed as often as the difficulty of respiration may indicate.

We shall now give some of the cases which prove how valuable a resource tracheotomy has been.

OBSERVATION LII.¹

David Jones, aged 53 years, who earns his livelihood by crying

¹ *Medico-chirurgical Transactions*, vol. vi., p. 250.

boxes and other articles about the streets, and had never been the subject of any similar attack before, became affected on Friday, June the 24th, with hoarseness, so that he spoke gruffly and with slight pain in the throat. He did not complain in other respects, though he thought proper to suspend his ordinary employment, fearing it might aggravate this hoarseness, and to take some opening medicine. On Friday, the 7th of July, he began to experience a difficulty of breathing, and, to use his wife's expression, to *hoop*; that is, to draw his breath with a peculiar sound. The voice was still more affected, and reduced to a kind of whisper. He was bled and purged on the 8th. At one in the morning of Wednesday the 12th, he again became much worse; the difficulty of fetching his breath was so great, that his wife said he was like a person running mad, not remaining quiet for a moment, but walking and moving about incessantly. Yet he particularly observed that this was his only grievance: and that if the stoppage in his throat could be removed, he should be well. He took an emetic, of which the operation rather relieved him; a very large blister was applied to the chest, and the whole throat was covered by another. The difficulty of breathing still increasing in spite of the full action of these blisters, and the danger of suffocation being extremely urgent, he was sent by Mrs. Parkinson, of Hoxton, to St. Bartholomew's Hospital, "where," says Mr. Lawrence, "I saw him at six in the evening. The distress of breathing was extreme; every inspiration performed with great effort, and the assistance of all the auxiliary powers was attended with a loud hooping noise, audible across the hospital square. He sat up in bed, shifting about incessantly to get breath, and agitated by the momentary expectation of suffocation; the occurrence of which, without some immediate relief, seemed close at hand. Sweat poured down in streams from the whole body; the pulse was 120, full, strong, and intermittent. He had no difficulty or pain in swallowing, and felt no inconvenience from fully distending the chest. There was a little coughing occasionally, excited by a colourless mucus about the larynx. Judging from the circumstances just detailed, that the affection was confined to the opening of the larynx, and the source of the patient's danger was a mechanical impediment to respiration, which bleeding and other evacuations, although fully justified by the state of the pulse, could not be expected to remove, I immediately determined on bronchotomy, receiving in this determination the sanction of my friends, Mr. Wheeler, the apothecary of the hospital, and Mr. Langstaff, who kindly favoured me with their assistance. I made a perpendicular incision, cut through the cricoid cartilage, and neighbouring part of the trachea, and removed a sufficient portion of these parts to leave a free opening for respiration. The blistered state of the skin, the depth of the parts in a short and thick neck, the rapid motions of the larynx, and the entrance of blood into the tube from vessels divided in exposing it, produced greater difficulties in the operation than a person would expect,

who formed his opinion from the ease with which it is accomplished in the dead subject. Two small arteries bled freely: one of them was tied, but the other could not be secured, on account of its lying completely under the edge of the cricoid cartilage; it was therefore left, the patient bending forward that the blood might not flow into the trachea. He breathed quite easily through the artificial opening; all the agitation and distress ceased; the skin became cool, and the pulse softer. Soon after he had some sleep, but did not rest well during the night. He took a saline mixture, with small doses of tartrate of antimony. The pulse was rapid and intermittent for two days, but there was no fever. Breathing was performed entirely through the wound, and the voice consequently was completely lost. There was a copious mucous and purulent discharge from the trachea and wound. On the 21st, he was sufficiently recovered to get up: by holding the edges of the wound together, he could breathe through the larynx and speak, but there was still a feeling of difficulty, which made it necessary to open the wound again in a short time. The 5th of August was the last day on which any air came through the wound, which had completely cicatrised on the 10th, when he was discharged from the hospital perfectly recovered, excepting that the voice still remained rough and hoarse."

It is difficult to decide, whether the case just stated properly belongs to laryngeal phthisis. Indeed, we see, in its rapid course, suffocation occurred quicker than it usually happens in simple laryngeal phthisis. Bayle would have regarded this case as belonging to *œdema of the glottis*. Inspiration was, indeed, more difficult than expiration, which was almost a pathognomonic character with him. This observation fully confirms what we said at the end of our paragraph on the connection between œdematous angina and laryngeal phthisis. From the beginning of the attack until the trachea was opened, colourless mucus flowed from the parts, but after the operation it was tinged with blood, and purulent. May we not conclude that the ulceration of the larynx was the result of the presumed œdema of the glottis?

OBSERVATION LIII.¹

Hoarseness.—Cough.—Dyspnœa.—Aphonia.—Dysphagia.—Imminent suffocation.—Tracheotomy.—Mercurial treatment, although there was no reason to suspect venereal taint.—Salivation.—Cure.

Mrs. Ann Hatton, aged fifty-three, of Barrow on the Soar, about fifteen miles from Nottingham, became affected in the latter part of September, 1817, with hoarseness and a hard dry cough. These two affections continued to augment in severity, without any additional symptom, during two months, when, about the 13th of November, a degree of difficulty in breathing, referred by the patient

¹ Medico-Chirurgical Transactions, vol. x.

to a "tightness in the throat," was superadded to them, and she discovered that she was unable to "snuff up" through the nose in inspiration, in the ordinary way. During two subsequent months, the hoarseness, cough, and dyspnœa continued and increased; and about the commencement of February, 1818, she began to experience, in addition, a degree of difficulty in swallowing. In the beginning of March she observed a swelling, rather diffused, but said to have been the size of a pigeon's egg, over the upper part of the thyroid cartilage, with an increase of the dyspnœa and dysphagia. A liniment was employed for this tumour, by which it was reduced in size, and the difficulty in breathing and swallowing diminished. In a short time, however, these symptoms again became aggravated, and they continued to augment until the month of August.

During the course of this affection, Mrs. Hatton constantly referred the seat of the difficulty of breathing to a tightness at the upper part of the larynx. She has always been affected with cough, accompanied by a peculiar, harsh, croupy sound in the throat; at first harsh and dry, but more recently attended with the expectoration of a viscid mucus, once tinged with blood. The dyspnœa has been constant, and lately much aggravated, precluding sleep, or putting a period to sleep by inducing a sense of impending suffocation, and rendering a raised position in bed absolutely necessary. Lately, too, she has suffered from fits of increased dyspnœa, threatening suffocation, obliging her to run for relief to the open window, and causing great anxiety and urgent distress.

"Mrs. H. applied to me," says Marshall, "on the 15th of August, 1818. She was then affected with a degree of hoarseness which rendered the voice nearly inaudible. There was a perpetual dyspnœa referred by the patient, by the noise in breathing, and by the sound of the cough, to the upper part of the larynx. She swallowed with great difficulty and effort. There was an obvious general tumefaction of the parts about the larynx, occupying the left rather more than the right side. She stated that she had experienced great difficulty in walking up a hill, or pair of stairs. She described the impossibility of snuffing up the nostrils, an effect, I suppose, of the partial closure of the larynx; for to produce this snuffing, it is necessary that a certain *quantity* of air should be drawn through the nostrils with a certain *velocity*; and, in the present instance, the *quantity* of air admitted appears to have been too small. The patient experienced increased uneasiness on drawing the head backwards. A bougie was passed into the œsophagus, but met with no resistance.

On the 15th, I recommended five grains of the pil. hydrarg. to be taken every night and morning, half an ounce of the sulphate of magnesia, twice in the week; four leeches to be applied over the larynx every other day, and a lotion constantly when the leech-bites were not bleeding.

On the 22d I again saw Mrs. H. The symptoms were unabated.

The mercurial had produced no effect on the gums. Mrs. H. was now induced to remain a short time in Nottingham. There was a degree of emaciation and debility; the pulse was rather frequent and feeble; the appetite impaired. The pil. hydrarg. was continued three times a day.

"On the evening of the 24th, Mrs. H. was seized with an alarming fit of dyspnœa, to which I was witness. There was the greatest anxiety of countenance and manner; in the breathing, every auxiliary muscle of respiration was called into action, and there was every appearance of impending suffocation. The dyspnœa had abated somewhat in violence, and there had been similar fits of dyspnœa before, or I should have immediately recommended the operation of laryngotomy. The difficulty of breathing abated gradually, and I left my patient in her usual state of dyspnœa.

"In consultation with Mr. Oldknow, a most skilful surgeon of this town, it was concluded that the operation of laryngotomy was necessary to avert the danger of suffocation, incurred during the fits of dyspnœa. The operation was therefore performed on the 25th instant, and I am obliged to Mr. Oldknow for the following account of it.

"An incision was made through the integuments, beginning a little above the thyroid, and terminating a little below the cricoid cartilages. The external surfaces of these cartilages were then exposed, partly by incision, partly by the finger. An opening was then made into the larynx, a little below the most prominent part of the thyroid cartilage, and extended downwards to the upper margin of the cricoid cartilage. This incision not being sufficient for respiration, a crucial incision was next made through the membranous connection of the two cartilages; but still with an unsatisfactory result, for the breathing was performed only in part, and with great difficulty, through the aperture thus made. A circular portion, about one-eighth of an inch in diameter, was therefore removed from the lower and lateral part of the thyroid cartilage, when the respiration became perfectly free, and the patient experienced the greatest possible relief. The cut edges of the integuments were kept asunder by straps of adhesive plaster, passed from them towards the nape of the neck.

"*Remarks.*—This operation was rendered more difficult than might have been expected, from the impossibility of the patient's reclining the head *backwards*, this position inducing greater dyspnœa. The larynx could not, therefore, be brought sufficiently forwards, and the depth of the incision was necessarily greater than was contemplated. The upper part of the thyroid gland, which appeared to reach higher than usual, was exposed. This gland was nearly in contact with the cricoid cartilage, so that an opening could not have been made through the upper ring of the trachea, without danger of wounding the gland and causing hemorrhage.

"It may be said, that an opening made so high in the larynx, as

in the present instance, is injudicious: first, on account of its affording less decided relief to the respiration, if there be extensive disease; and, secondly, on account of the danger of wounding the vocal cords. With regard to the first objection, the decisive relief afforded to respiration, in the present instance, at least, is a sufficient answer. With respect to the second, if care be taken to remove a part of the thyroid cartilage, to the extent above specified, from the inferior and lateral part of this cartilage, no injury will be inflicted on the vocal cords, their anterior attachment being nearly opposite to the most prominent and central part of the cartilage.

"On the other hand, the advantages of a permanent opening, thus induced, are very considerable, especially when we consider the impossibility frequently experienced, of employing a tube to insure the same effect. In the present case, the introduction of a probe, merely, induced the most distressing fits of convulsive coughing.

"This operation afforded immediate relief to the respiration, and Mrs. H. slept soundly through the ensuing night, for the first time for a long period. Deglutition continued difficult, and always induced coughing during the five or six subsequent days. The cough raised some viscid mucus, which was forced through the orifice made by the operation. The voice was quite lost.

"On the day of the operation, the pil. hydrarg. was omitted, and the ung. hydrarg. was prescribed to be rubbed in, in the quantity of half a dram, morning and evening. The ol. ricin. was ordered to open the bowels.

"On the 28th, the mouth became sore. Mrs. H. soon afterwards experienced a mitigation of the difficulty in swallowing, and on applying the finger to the opening into the larynx, she found, in a short time, that the tightness in the respiration was also diminished, and that she could breathe with greater facility than before the operation, and, as she expresses it, more freely through the nose.

"This amendment continued progressive; and, on the 15th of September, the orifice into the larynx so far closed, after an attack of sickness and retching, induced by the ol. ricini, that the air only passed through it during respiration. On the 11th, the orifice closed finally; the respiration, however, was free, the swallowing easy, and there was a slight return of voice even. On the 13th, I again heard from Mrs. H., who had returned to Barrow; the amendment continued; the mouth was extremely sore. The ung. hydrarg. was ordered to be used sparingly.

"On the 22d, I paid Mrs. H. a visit. She was sitting up in bed. She breathed with perfect freedom, and had had no paroxysms of augmented dyspnoea since the time of the operation; she swallowed without uneasiness or effort, and, as she said, as well as ever; the whisper had advanced to a hoarse voice; and she could snuff up the nose with the usual force. Speaking, however, still required much effort, from the remaining hoarseness; and in swallowing, the skin just above the cicatrix was drawn into wrinkles, being

raised by its adhesion to the thyroid cartilage. The tumefaction about the larynx had entirely disappeared. There was scarcely any cough, and but the scanty expectoration of a little mucus. The general appearance, strength, and appetite were improved. She could lie down, and sleep the night through. The mouth was better, but still affected by the mercury.

"Oct. 27th. Soon after the date of the last report, Mrs. Hatton imprudently left her bed-room, and exposed herself to the draughts of air in a room with three doors. She appeared to take cold in consequence, and a degree of difficulty of deglutition, and a loss of the voice formerly regained, was the effect. She came once more to Nottingham; she was once more put upon a course of ung. hydrarg.; and, in proportion as this remedy induced ptialism, the dysphagia disappeared entirely, and the voice became again improved. To-day, two months after the operation, she only suffers from the effect of the mercury on the mouth; the respiration and the swallowing are quite natural, and the general health and appetite are good. She returns home, with the recommendation to continue the use of the ung. hydrarg. for a time, to put on flannel, and cautiously to avoid exposure to cold.

"This state of amendment still continued on the 16th of December, and on the 8th of January, 1819, when Mr. H. called to give the most satisfactory account of his wife's recovery and general health."

OBSERVATION LIV.¹

Exposure to cold.—Hoarseness.—Dyspnœa.—Bleeding, blisters, and purgatives, without effect.—Emetics.—Slight improvement.—After six weeks, impending suffocation.—Tracheotomy.—Mercurials to salivation.—Cure.

On entering the Meath Hospital on the morning of the 2d of February, I was informed—says Mr. Porter—that a person, named Michael O'Neil, had come to the institution, labouring under excessive difficulty of breathing, and was waiting for assistance: indeed, it required little discrimination to point out the nature of the case, for, at the distance of several yards, I could distinctly hear the sibilous whistling noise peculiar to the breathing of persons suffering from cynanche laryngea. Without delay, therefore, I commenced an examination of the case.

He appeared to be a man of about thirty years of age, strong and well formed, but with a slight stoop. His face was pale and swollen; his lips livid; he sat with his mouth closed, but his nostrils widely extended; his eyes seemed protruded and starting from their sockets, but, at the same time, the conjunctiva appeared very white, and covered with a watery suffusion. There was, altogether, an expression of indescribable anxiety in his counte-

¹ Medico-Chirurgical Transactions, 1821, vol. xi. p. 414. Treated by Wm. H. Porter.

nance; his pulse was hurried, but not irregular; his breathing very laborious; he made two, three, and even more attempts at inspiration for one expiration, and his muscular heavings and convulsive struggles for breath were truly painful to behold. He breathed with a peculiar hissing or whistling sound, giving a distinct idea of the forcible passage of air through a contracted aperture, and he had almost lost his voice, the utmost endeavour at speech amounting only to an indistinct whisper. On being questioned as to the seat of his uneasiness, he pointed to the situation of the larynx, and even appeared to feel pain on this part being pressed externally. On account of the great difficulty of breathing, it was impossible to place the patient in a position such as would allow an examination of the state of the fauces; but what could be seen exhibited no mark whatever of the existence of inflammation; and it afterwards appeared, from the patient's own account of himself, that at no time did he experience the smallest impediment to deglutition.

It was extremely difficult, from the patient's inability to speak, to gain any information as to the duration of the disease. At first, I was led to understand that it had occurred only that morning; and, afterwards, he seemed to say he had been ill for five weeks; so, not knowing what to believe, and being guided chiefly by the urgency of the symptoms, I immediately ordered that he should have a bolus containing ten grains of the submuriate of mercury, and that a large quantity of blood should be taken from the arm. The veins of both arms were opened at once, and between thirty and forty ounces of blood were abstracted while the patient sat erect; yet, to the moment before the flow of blood was stopped, he exhibited scarcely a symptom of weakness, and the difficulty of breathing was not at all alleviated. Feeling now that any other mode of treatment, directed to the removal of inflammation, would afford but a slender prospect of relief, and that, under existing circumstances, the life of the patient could not endure many hours, it was resolved that the operation of tracheotomy should be performed with as little delay as possible.

In about two hours afterwards, (a delay which unavoidable circumstances rendered necessary,) I returned to the hospital to perform the operation, and found the patient labouring under circumstances peculiarly unfavourable, considering so short an interval had elapsed. There was scarcely a pulse to be felt at the wrist; his extremities were cold; he lay on his back almost insensible, and seemed sinking with amazing rapidity. There was now not a moment to be lost; and, with a view of disturbing the patient as little as possible, I resolved that he should not be carried from the ward; and, having had the bed removed to such a position as afforded the most favourable light, I performed the operation, assisted by my friends, Messrs. R. M'Namara and T. Roney.

An incision was made nearly three inches in length, commencing a little above the cricoid cartilage, and continued towards the

sternum, dividing the skin and cellular substance down to the muscles. At this period of the operation, two small lymphatic glands were exposed, which protruded forwards, and, interrupting the view of the parts, were cut away. The incision was then carried deeper, still preserving the central line of the neck, until a fascia covering the trachea was exposed; and here lay the greatest difficulty of the operation. The trachea was moved upwards and downwards behind this fascia, according to the patient's exertions to breathe, and it was impossible to open it satisfactorily until this membrane was completely removed, a proceeding that occupied some time. It was, however, effected: the trachea was laid bare, in extent about three-fourths of an inch, and a circular portion removed, the diameter of which might have been one-fourth of an inch. At the moment the bistoury was passed into the trachea, and the external air admitted, the patient seemed to experience an almost immediate change. He had before lain perfectly quiet, had scarcely winced under the knife, and appeared nearly insensible; he now raised himself suddenly in the bed, and coughed with some violence. In a moment, however, he laid down again, and the operation was completed; a silver tube was introduced into the aperture, and retained there by tapes passed through the rings attached to it. It is impossible to conceive any thing more instantaneous, or more complete than the relief afforded by the operation. He now breathed freely through the wound; the convulsive muscular heaving ceased altogether, and the acts of inspiration and expiration were performed in regular and healthy alternations. I regret that I did not examine the state of the pulse after the operation, to ascertain if the restoration of respiration had any effect in altering its character.

It is to be remarked, that all the steps of this operation occupied but a few minutes, and though I believe the central slip, connecting the two lobes of the thyroid gland, (which in this place must have been very small,) was completely divided, there was scarcely any hæmorrhage: there was some from the superficial veins; but, in all, it did not amount to more than two or three ounces.

The patient's bed was now rolled back into its place, and as he seemed greatly exhausted, warm wine and water were administered; his feet were wrapped in flannel; warm bricks were applied to them; and having prescribed another bolus, containing ten grains of the submuriate of mercury, I left him under the care of two intelligent pupils.

On visiting the patient in the evening, I found he had had some sleep during the day, and was lying quietly, but extremely weak; his breathing was regular, and through the wound; his pulse about one hundred and ten, but so small as scarcely to be felt under the finger. He had expectorated a small quantity of mucus through the canula. On being questioned as to his feelings, he wrote on a slate that he was wonderfully relieved. He now got ten grains more of the submuriate, making in all half a dram in the course of

the day; and a purgative enema was directed to be administered in a short time, if the bowels were not previously freed.

February 3d. He had slept pretty well during the night, and had five or six stools, after the administration of the enema; but towards morning, respiration became again, in some degree, impeded, and when I visited him, he breathed with nearly the same sibilous hissing noise as before the operation. On examination, I found the tube had slipped out, and the size of the opening into the trachea was greatly diminished, from its edges being covered with inspissated mucus; this was cleared away with the end of a probe, and as the canula was found too short, a longer one was introduced. The patient now felt comparatively comfortable, and expressed his sense of relief by signs. Pulse one hundred and ten, but still extremely feeble, and his extremities had not yet recovered their natural warmth. His allowance of warm wine and water was therefore continued, and he had half a dram of the submuriate of mercury in three separate divided doses on this day also.

Feb. 4th. He had slept tolerably well on the preceding night, but had one or two attacks of convulsive breathing from the wound being obstructed. Pulse one hundred, something fuller and soft; his bowels were free, but his breathing still obstructed by inspissated mucus, and he was sometimes obliged to resort to the natural opening of the larynx, and to use strong muscular exertions in inspiration, although in a far minor degree to what occurred previous to the operation. The wound required to be kept constantly clean in order to prevent these attacks of obstructed respiration, and the patient was greatly teased with the quantity of mucus that accumulated in the throat, and which he was obliged to expel through the wound. The expression of his countenance was much altered. He had lost all the wildness and anxiety that formerly characterised it, and the livid, swollen appearance of the cheeks and lips had been completely removed. He still remained very weak, and had warm wine and water as usual. He took this day a scruple of the submuriate in two equally divided doses.

Feb. 5th. Had rested well, and had four evacuations from his bowels; pulse one hundred, and soft; appetite good; he asked for food, but could not be indulged to the extent of his wishes. His mouth was sore from the use of mercury, and there was strong mercurial fætor from it. He breathed partly through the wound, and partly through the rima glottidis, but without much noise, or any muscular exertion. On placing a finger on the wound, so as to close the artificial opening, the amendment in his breathing became very apparent, and he could make a good attempt to speak. He had no cough, and in consequence of the mercury taking effect on his mouth, the large quantity was laid aside, and pills containing two grains each, combined with antimonial powder and opium, were ordered to be taken three times a day.

Feb. 6th. Patient appeared very drowsy, seemingly from the effect of the opium he had taken, but signified that he was much

better ; had slept very well during the night, and had three evacuations from the bowels ; pulse one hundred and two, soft, rather fuller. He breathed entirely through the wound, but the passage of air was accompanied by a hissing sound, in consequence of the edges of the opening into the trachea being covered with inspissated mucus, which required to be cleared away every two or three hours. In order to remedy this inconvenience, I resolved on enlarging the opening, and removed another portion of the trachea, which left the aperture three-eighths of an inch long, measuring from above. After this, there was no further trouble in cleaning the wound, and the patient lay perfectly quiet, breathing with great ease, and expectorating freely through the wound.

On visiting the patient in the evening the advantage of having enlarged the opening was very apparent. There was not the least expression of anxiety or uneasiness in the countenance. His breathing was free ; pulse full and soft ; he had no cough ; his appetite so good, that he had chicken this day. He wrote on a slate that he had experienced the greatest relief.

Feb. 7th. Had slept extremely well, and the drowsiness observed on the preceding day, had not entirely gone off ; pulse 100 ; breathing very free, and without the smallest noise. The wound now discharged healthy pus in moderate quantity, some of which occasionally falling into the trachea excited cough, but he expectorated freely by the wound. The expression of his countenance was greatly improved, his complexion had partly returned, and his sister who attended him, said, that he appeared now nearly the same as before his illness. His mouth was very sore, and the ptyalism profuse.

Feb. 8th. He had slept well, and was much better ; breathed without any difficulty through the wound ; coughed a little from pus getting into the trachea, but expectorated freely ; pulse 96 ; his mouth very sore, with a good deal of ptyalism, but not the slightest uneasiness in the situation of the larynx.

Feb. 9th. (8th day.) The patient's mouth was very sore, but in other respects he was rapidly improving ; pulse 86 ; breathing very free through the wound. On placing my finger on the aperture in the trachea he spoke in a full, clear, deep tone, and said that all uneasiness was completely removed.

After this day I made no report of the state of the patient, unless that he was recovering rapidly. His mouth continued for some days excessively sore, and there was profuse ptyalism ; to relieve which, he had some saline purges with the best effect ; and as the irritation continued in his mouth, and his jaws were greatly swollen, it was deemed right not to unite the external wound until these symptoms were abated, particularly as its remaining open did not produce any inconvenience. It was, however, completely united on the 22d of February : the patient was up, walking about the ward, and apparently in as good health as at any period of his life. He subsequently left the hospital on the 3d of March, and as I have

seen him frequently since, I am satisfied not only of his entire, but permanent recovery.

When this poor man had completely recovered, I endeavoured to ascertain from himself an accurate history of the case previous to his application at the Meath Hospital; and the following is the account he gave.—It was on the 16th of December he first perceived a hoarseness in his voice, which seemed to have come on without any apparent cause; he had not committed any excess, nor exposed himself in any way to cold. This hoarseness lasted for ten days, but was unaccompanied throughout with difficulty of deglutition; soon after Christmas, the breathing became greatly obstructed, and then the distress he experienced drove him to seek relief at different charitable institutions. He had been bled and blistered at one, without the smallest benefit. He was twice bled at another, without relief. He applied to two private practitioners, from one of whom he got a great quantity of purgative and nauseating medicines, the latter of which relieved him more than any thing else; by the other he was ordered to apply blisters twice. On the very day before he came to the hospital, there were three blisters, in different situations; and as he observed that he was always much worse after their use, he attributed the great exacerbation of the disease to this circumstance. On the night before he came to the hospital, he felt a pain in the chest so severe as to prevent his lying down in bed, which continued all night and the next morning, until removed by the copious bleeding. Previous to the attack of cynanche laryngea, he always imagined that he had bad lungs, he breathed short, and could not walk more than a mile without much distress. He had always a thick unpleasant sensation whilst speaking, and he says now that all these inconveniences are removed, and that he is really better than ever he was before; probably the comparative comfort he feels now, with what he experienced for seven or eight weeks previous to the operation, makes him exaggerate the real relief he obtained from it.

OBSERVATION LV.¹

Ulceration of the larynx and trachea—Impending suffocation—Tracheotomy—Cure.

A man of thirty-six had ulcers in his throat at different times, which were suspected to be venereal. The inflammation had invaded the larynx, and there was difficulty of breathing and much hoarseness. A blister and leeches were applied, with a course of mercury, and the symptoms yielded in part. Still, the patient, in a violent fit of suffocation, expelled from the larynx a piece of bone supposed to be a fragment of the sternum, at the upper part of

¹ Related by Dr. Goodeve, *London Medical and Physical Journal*, July, 1826.

which there had been an inflammatory swelling.¹ The respiration and voice became freer, and the patient appeared cured. But the suffocation soon returned, and became so threatening, that Dr. Goodeve thought it necessary to practise tracheotomy: the patient was almost dead with asphyxia. An opening of six lines was made into the trachea, which caused the difficulty of respiration to cease immediately, and at the end of twenty minutes a gum elastic canula was introduced, which at first caused violent irritation and much cough, with expulsion of bloody mucus: but these accidents ceased at the end of an hour. The patient wore the canula for six months, after which he was entirely cured without alteration of the voice.

Mr. Goodeve observes that this is the second case he had met in which a canula had been introduced into the trachea to be worn permanently, and relates that Price carried one for ten years without inconvenience.

OBSERVATION LVI.

Chronic laryngitis for four years and a half—Imminent suffocation—Tracheotomy—Introduction of a permanent canula—Respiration established—After seven months difficulty of deglutition and respiration—Development of a tumour in the back part of the trachea—Death from inanition eight months after the operation.

Mary Ann Milet, aged sixty years, having a robust constitution and great spirit, conducted a large farming establishment for thirty years.

In January, 1831, she was attacked with fits of dry cough, during which she had involuntary emissions of urine: the fits first occurred at considerable intervals, then every day, and finally several times a day.

January, 1833, she lost her voice; it returned towards the end of February. About the middle of January, 1834, her voice was again changed, and grew worse until July, when there was complete aphonia.

She did not determine to take advice until September, when a blister was applied to her left arm and continued two months. In November ten leeches were applied to the neck: a few days afterwards a blister was placed on either side of the larynx and kept open two or three months; and in January, 1835, a seton was introduced in the nucha.

On the 29th of January, M. Andral diagnosticated chronic laryngitis, and suspected pulmonary emphysema.

The disease still progressed, the fits of cough were accompanied with an insupportable sense of scraping in the throat, and were

¹ There is every reason to believe that this fragment was part of one of the rings of the trachea or cartilages of the larynx.—(*Note of the authors.*)

sometimes followed by obstinate sneezing. The cough was somewhat soothed by a draught of water.

Towards the middle of December, 1834, respiration was, for the first time, difficult, then laborious, hissing and hurried. Insomnolence; the horizontal position increased the oppression, and was soon impracticable. Dyspnœa became so great, on the 22d of February, 1835, that asphyxia appeared imminent.

On the 23d of February we opened the trachea, and introduced a large canula. All effort in respiration immediately ceased, the air entered the lungs without any difficulty. From this period until the 5th of May, when we discontinued our visits, respiration was completely established by the artificial opening.

Some months later, she was doing very well, deglutition was easy, respiration without any difficulty; but when the canula was removed, or closed, it was evident that the larynx was impervious.

In September, 1835, nearly seven months after the operation, deglutition became difficult, and respiration obstructed, nor could it be re-established by the canula which was too short. From this time we suspected a tumour at the posterior part of the larynx.

This suspicion was but too well founded. Gradually, solid or liquid food passed with difficulty, and at length could not reach the stomach, and the unhappy woman died of hunger and thirst towards the end of October, 1835.

The autopsy was not made.

OBSERVATION LVII.

Hoarseness—Dyspnœa—Fits of suffocation—Approaching death—Laryngo tracheotomy—Amendment—Introduction of a permanent canula—Death ten months after the operation.

Dr. Evrat, a distinguished accoucheur, had arrived at the age of seventy without any infirmity. His voice was clear and very agreeable.

On the 1st of January, 1833, he had to go to Versailles in the night to attend an accouchement, when he contracted a hoarseness that no remedies could modify.

He had no oppression, very little cough, and no expectoration; his general health continued excellent.

Complete aphonia came on in November, 1834. On the 20th of January, 1835, he had a fit of *asthma* in the night, and from that time ceased pursuing his profession.

He could not sleep, unless supported by pillows, and was finally obliged to spend most of the night sitting up in bed.

Thus far he had scarcely complained of his situation, and thought it was only an attack of asthma, because he had a remission during the day.

But on the 3d of February extreme orthopnœa obliged him to apply leeches, which did not hinder the suffocation from becoming imminent.

We were then called to the patient, and met in consultation Professors Moreau, Roux, Dubois, senr., and Chomel. Death was at hand, and tracheotomy was considered the only resource. The patient united in this view, and insisted upon the operation.

On the 5th, at 2 P. M., we practised laryngo-tracheotomy; that is to say, we cut the crico-thyroid space, the cricoid cartilage, and two rings of the trachea.

Convalescence was rapid, but the larynx appeared completely obliterated eight or ten days after the operation. Deglutition continued difficult; drinks, and crumbs of food, provoked insupportable fits of coughing.

He recovered his breath, and bore the canula pretty well; but grew emaciated in consequence of insufficient alimentation.

Finally, in November, 1835, ten months after the operation, he was carried off by dysentery, without any symptom in the respiration, in the sounds of his thorax, or the nature of his expectoration, that induced M. Chomel to suspect the existence of a pulmonary lesion.

Three months before death, a little tumour was developed above the canula, from which there was frequent hemorrhage, that gave it the appearance of cancer. It increased or diminished in consequence of the irritation caused by the canula; when we used a longer one, it almost disappeared, and we did not then think it cancerous, but supposed that the thyroid body, which had been cut in the operation, was irritated by the canula, and thereby hypertrophied.

We should also state that three months before his death, M. Evrat coughed up a piece of bone, which could be nothing else than an ossified and necrosed portion of cartilage. Could this necrosis have been caused by the presence of the canula, which rubbed against the cricoid cartilage, or was it produced by the same organic lesion that first brought on aphonia, and afterwards suffocation? This fact could only be ascertained by autopsic examination, which was not made, although M. E. had authorised it in his will.

OBSERVATION LVIII.¹

Chronic laryngitis for several months—Imminent suffocation—Tracheotomy—Death a month after the operation—Thickening of the mucous membrane of the larynx and epiglottis—Caries of the thyroid cartilage—Trachea and lungs healthy.

On Tuesday, the 1st of August, among the patients who presented themselves for admission at the Middlesex Hospital, was Hannah Donovan, æt. 34. She was seated upon the ground, with

¹ Medico-chirurgical Transactions, vol. vi. p. 253. Communicated by Dr. P. Latham.

a number of her friends standing around her, who fancied she was dying. She was breathing with great labour, and with a hoarse and croaking sound, audible to a considerable distance; and in her countenance she exhibited much distress. When interrogated respecting her complaint, she answered with difficulty, and in a voice interrupted by convulsive catches; not being able, without some effort, to obtain breath sufficient to articulate. She referred to her chest, and particularly to the upper part of the sternum, as the situation where she felt great oppression; and being desired to place her finger on that part of the throat where she felt pain, she laid it on the thyroid cartilage. She could swallow fluid only in the smallest quantity at once, and with great difficulty; of solid food she had taken none for some days. Respecting the history of her complaint, it was not easy to obtain a satisfactory account; for she and her friends were of the low Irish, and each gave a different answer to most of the questions that were proposed to them. Thus far, however, they seemed tolerably agreed, that she had been hoarse during some months; that she had been worse during the last three weeks, and that the symptoms had subsisted almost in their present severity during three days. Her pulse was full and strong, and 112 in a minute; she had considerable heat of skin, probably owing to the exertion she had made, for it could not be regarded as the heat of fever, inasmuch as the tongue was perfectly clean, which was probably a sufficient evidence that the disorder was not of the acute kind. Not the least appearance of inflammation or tumefaction was discernible, either in the tonsils, or any part of the internal fauces within view. Upon the whole, however, it was thought best to take blood from the arm, to apply a dozen leeches to the throat, and afterwards a blister; to order some purgative medicine to be taken immediately, and small doses of calomel, antimony, and digitalis, every four hours. Before the prescribed quantity of blood was taken from the arm, she fainted, and in the act of recovering she vomited, and seemed somewhat relieved. In the evening, the blood that had been taken, the operation of the purgative medicine, and one dose of the powders, had in no degree relieved the symptoms. She seemed to be using all her efforts to prevent strangulation. Her strength, however, had not visibly declined since the morning; her pulse was not diminished in force, or increased in frequency; nevertheless, considering that the symptoms were not such as to characterise acute inflammation, I saw no warrant—says Dr. Latham—for taking more blood from the constitution, and contented myself with an attempt to render more tolerable the distressful symptoms of a disorder which seemed beyond the possibility of cure. With this view the patient was ordered to take thirty drops of the tincture of opium, and those in attendance were enjoined to repeat the same dose two or three times more during the night, if it seemed necessary.

On Wednesday morning she was almost exhausted by the labour of respiration. She had been delirious during the night, and had

obtained no rest. Her countenance was become pale, and its expression of anxiety much increased. The pulse was weaker and more frequent, and her ability to articulate was almost gone. Under these circumstances the operation of bronchotomy seemed to present itself as the only method whereby the patient could be rescued from certain death, and with this view I could not satisfy myself without pressing its adoption. At a consultation, however, in the course of the day, the medical gentlemen of the hospital did not deem it advisable. I saw her in the evening, when it was to all appearance probable that she would die in the course of the night. On Thursday morning I came early to the hospital to enquire the state of my patient, and found that Mr. Charles Bell had in the night performed the operation, and that she was still alive.

The operation consisted in a division of the cricoid cartilage in front, and no sooner was it completed than she seemed at once released from an insufferable load of misery. Her head sank backwards, and she fell into a profound sleep so instantaneously, that she was at first thought to be dead: whence it may be calculated how near she had approached to the last degree of exhaustion, and how great was the relief afforded by the operation. The patient, it was hoped, was now placed in a condition to endure her disease, while it passed through the natural process of its reparation and decline, if fortunately it should be in its nature remediable.

After the operation, however, a difficulty presented itself in the adaptation of an instrument to keep the edges of the wound asunder. The insertion of a tube was quickly found to be impracticable, and a silver wire bent into accommodation with the sides of the aperture served as a temporary expedient, until one more suitable was devised. The instrument employed afterwards consisted of two branches connected by a hinge, and of a flattened figure; these were inserted in the wound of the external parts, and separated from each other, or approximated by means of a screw, which passed through their extremities out of the wound. When the ends in the wound were separated, the sides of the incision were kept asunder, and the instrument remained fixed in its place: by approximating them it became loose and could be removed.

During many days the state of the patient was too precarious to allow the most sanguine to cherish an expectation of her recovery. The matter which was perpetually accumulated in the aperture, and the constant necessity of cleansing the wound, and of withdrawing and reinserting the instrument, unavoidably produced and maintained the severest irritation and pain. Under these circumstances she was at intervals reduced for a time to the same degree of suffering as previously to the operation. For the mucus, which was secreted with the greatest rapidity in the bronchia, and raised by the cough into the larynx, adhered to the instrument and to the edges of the wound, and served to diminish and almost to occlude the aperture. Hence a severe struggle commenced to overcome the obstacle which plainly threatened strangulation. These pa-

roxysms returned at first several times in an hour; and as the secretion of mucus was diminished, less frequently. But to the last they continued to recur at more distant intervals, and occasioned such terror and perplexity to the patient as to fill her with an apprehension of death every time they returned.

After the lapse of a fortnight, although there was little abatement of the severity of the occasional paroxysms, her constitution was less under the influence of permanent irritation. She began to believe it possible that she might recover; her mind became more tranquil, and her countenance cheerful; she enjoyed sound repose; and when the trachea was not obstructed with mucus, and the aperture was free, her respiration was almost inaudible. Her favourite posture, in which she seemed to have the greatest comfort from facility of respiration when awake, and in which she was always observed to sleep, was that wherein the trunk is bent forward upon the knees, and the head reposes upon the support of the hands.

At the completion of the second fortnight it was time to expect some evidence of progressive amendment in the disease of the larynx. But this organ had not at all resumed its functions, and if any change had taken place in the disease, it was probably for the worse. She was still unable to articulate; and when the aperture was closed she struggled for breath. Besides, she had become generally more irritable; she had suffered more severely from tightness and oppression across the chest, which was relieved for a time by blisters, and then quickly returned. Expecterant medicines brought little alleviation, and short intervals of ease were purchased by long struggling to rid herself of that which seemed to threaten her life. Her existence was certainly prolonged during many days by the assiduity and attention of Mr. Heath, the apothecary of the house, who was hourly present with her; and who, during her paroxysms, by means of a probe, covered at the point with cotton, cleared away the mucus that entangled itself with the instrument, and thus set her respiration free. On the night of the 11th of September she was seen struggling in a severe paroxysm, and before assistance could be procured she expired. The lungs were inflated, and every other method was employed which was calculated to resuscitate suspended animation, in vain.

Upon dissection, the mucous membrane, where it lines the larynx, and extends over half the posterior surface of the epiglottis above, and to about an inch beyond the cricoid cartilage below, had assumed for the most part a thick and puckered condition, and had partially thrown out coagulable lymph of a stringy and fibrinated texture, which obliterated the ventricles of the larynx, and contributed almost to close the rima glottidis. There were found, besides, two ulcerations through the substance of the thyroid cartilage, which contained pus and communicated with the cavity of the larynx. The lungs, trachea, and its ramifications, were healthy; the opening into the larynx was a little on the left of the

tube, just below the thyroid cartilage, and on the upper edge of the thyroid gland; which latter seemed to have been slightly included in the incision.

OBSERVATION LIX.

Chronic laryngitis—Tracheotomy—Cure.

The Journal of the Progress of Medical Sciences, vol. v. p. 226, (1829,) contains an account of a tracheotomy, after which the patient wore a canula in the trachea eleven months, during which time the affection of the larynx was perfectly cured.

This observation, published by Dr. Senn, of Geneva, was read at the Institute, and furnished the topic of a report from MM. Dupuytren and Duméril, on the 10th of December, 1827. We have considered it worth transcribing:—

“Maria Vonan, aged six years, of small size and lymphatic temperament,” says Dr. Senn, “was brought to me by her mother on the 22d of August, 1826. This intelligent and gentle child had been treated for croup eighteen months previously by Dr. Gosse. Since then, she has always had a weak voice, and difficult respiration and deglutition. I found her in the following condition:—

“Decided emaciation; braying; hissing; half aphonic respiration; the thyroid gland double its usual size. Exploring the chest, I find the sounds every where sufficiently clear, and the hissing appears to exist in the larynx or upper part of the trachea. The digestive functions are well performed.

“I had just heard in our medical society, a very interesting memoir by Dr. Prevost, who related many cases of little goîtres pressing the trachea so as to cause fatigue of the inspiratory muscles, and a cough very much like that of incipient phthisis.

“Thinking it was a case of this kind, I put the child on the following treatment:—Pure bread and milk diet; a tenth of a grain of hydriodate of potash in sweetened water, to be taken twice in twenty-four hours; and half a dram of the hydriodate ointment to be rubbed on the axilla every night. I need hardly say that a milk diet was adopted to prevent the frequently troublesome action of preparations of iodine on the digestive apparatus.

“Three weeks of this treatment sufficed to reduce the thyroid gland to its natural volume. The child gained flesh; respiration and deglutition became easy, but there was little change in the voice. It was evident that the obstacle had partially yielded, but that the larynx was not in its natural condition. But as the mother was satisfied with her improvement, I did not see her again until the following April, when she was brought back, and I was pained and surprised at her situation.

“She was reduced to the greatest emaciation; respiration was very braying and painful to bear, it required the energetic contraction of all the muscles associated with the true muscles of inspira-

tion. At every breath, the trachea was drawn upwards and back so as to be buried between the sterno-hyoid muscles; the thyroid body had preserved its natural dimensions. She swallowed liquids and soup easily, but no food, like bread, which formed a considerable alimentary bolus, could pass to the stomach.

"The stethoscope again indicated that the difficulty was in the larynx, I conceived the idea of opening the upper part of the trachea and of keeping this passage free by means of a canula: I had seen the operation succeed in horses, and besides, I was induced to perform it by the danger the child ran of asphyxia, should a slight angina occur. I knew that tracheal fistulæ, after ulcers, or wounds with loss of substance, were harmless. Still, aware of the difficulties of the operation, and wishing to divide the responsibility, I called in Dr. Prevost.

"He united with me in my opinion of the dangerous situation of the child, and the necessity of relieving it, even by a hazardous operation; but advised consulting my most experienced colleagues, MM. Maunoir, Mayor, Peschier and Olivet. When called in consultation, these eminent surgeons, without partaking of my confidence in the operation, were agreed that it would be proper to try it, citing the aphorism; *In extremis morbis, extrema remedia*.

"We endeavoured to ascertain with more precision the seat of the obstruction, the glottis was explored with the finger: one of my colleagues thought he perceived a tumour, but I could trace nothing, though the examination was frequently repeated, and I persisted in the belief that it was probably the result of a thickening of the mucous membrane.

"For eight hours previous to the operation I continued examining the child attentively, and convinced myself that the dreadful progress of the marasmus was attributable to the excessive fatigue of the efforts of inspiration. They were so great, especially during sleep, that a physician, unaware of the history, would have considered the child to be dying with croup; the head was raised from the pillow at every breath and the whole body shaken.

"The operation was decided for the 3d of May; I resolved to practise it at two distinct periods, to diminish the chances of failure; in the first, to lay bare the trachea and wait for the blood to stop flowing; in the second, to cut the cricoid or some of the rings of the trachea, and not introduce the canula until the inflammation had subsided. The first stage of the operation was very difficult. The impaired respiration caused a considerable flow of venous blood, and the trachea being in constant motion, many arterial and venous ligatures were necessary. I left the wound open. Six hours afterwards, I plunged a very narrow bistoury above the cricoid, and cut directly downwards four or five lines. The air rushed out forcibly and expelled some blood. I have said, above the cricoid, for so I presume, but it was difficult to tell precisely, because of the depth of the trachea.

"So soon as this passage was opened for the air, respiration be-

came free, and we were sure of being below the obstacle, but a venous hemorrhage, at the bottom of the wound, probably from the tracheal mucous membrane, or from the network of veins immediately above this canal, obliged me to tampon, and lose the advantage of the operation for a while. The night was pretty comfortable; there was blood enough lost to avoid the occurrence of tracheitis; the child was kept in perfect rest and on strict diet. The paroxysms were frequent during the first forty-eight hours. The pulse was from 160 to 180. Perspiration profuse, but suppuration was gradually established, the compresses of charpie were removed and respiration performed through the wound.

"On the 6th, the third day, the buccal mucous membrane was covered with a slight creamy coat; pulse frequent, skin hot, no pain, (detergent gargles.)

"7th. The child frets for food: I directed very small quantities of milk and water every half hour. Three or four times a day I cleanse the sore, and clear away the pus and mucus which is constantly expelled from the trachea; otherwise they would dry on the edges and obstruct the passage of the air. At every dressing, I introduced the extremity of a laryngeal sound, to assist the opening and gradually diminish the sensibility of the mucous membrane.

"On the 12th, the ninth day, the child has regained its strength and playfulness, the expression is good, the pulse 90.—After the evening dressing, I left the opening very free, intending to return the next day and introduce a canula. But, during the night, a great deal of mucus was expelled, which completely obliterated the opening. The persons who stayed with the child, expecting it would die suffocated, lost their presence of mind, and, towards morning, I found it covered with cold sweat, almost pulseless, unconscious, and so ill, that at first, I thought it useless to do any thing, as it seemed foolish to use restoratives to a corpse. But, reflecting that all these symptoms might be only the result of fatigue from the violent efforts at respiration, to which the child had not been accustomed for some days, I introduced a canula. The child was still unconscious, but respiration became more rapid, 80 in a minute, and then gradually diminished; the lungs, which were probably engorged, unloaded themselves, and in two hours, the child breathed only twenty times in a minute, and began to answer by signs; the pulse was of good volume and regular. In the evening, I found her sitting up in bed and eating as well as before the crisis; from that time I considered it necessary to wear the canula constantly, and had two made. After many attempts, I adopted the following form as best adapted to fulfil the indications:—the general form is curved, being well suited to the direction of the trachea, it could follow all its movements. The extremity is oval and furnished with three lateral openings, like a female catheter, so that it could not wound the mucous membrane, could not easily clog up and might be readily cleansed. A circular plate, at its upper extremity, assists in securing it, and prevents its penetrating too

deeply; finally, its large superior diameter, three lines and a half, gives a free passage to the air, and its small diameter, below, of two lines, prevents the sides of the trachea from becoming too much fatigued.

"Some days afterwards, the canula was left out too long, and as the nurse was unable to replace it, the child was asphyxied; I was called, and by blowing through the canula after replacing it, consciousness was soon restored; this accident taught me a lesson. After this whenever one canula was removed to clean it, the other was instantly replaced. No mishap ensued, though a severe pulmonary catarrh occurred after exposure to a draught of air, which caused an abundant secretion of mucous, and required the canula to be changed almost every hour.

"On the 22d of May, the catarrh was completely recovered from, the canula remained all night without becoming obstructed, there were no more sweats nor paroxysms. She gradually gains flesh, has a good appetite, and every thing induces the belief that there is no more danger to be apprehended; but the first indication only is fulfilled, the larynx is still obstructed: shall we succeed in attempting to relieve this? At any rate, we must await the complete re-establishment of the child's health.

"In the month of June, when perfect health was restored, I wished to make another examination of the larynx, to see what was the difficulty; but I did not find the same docility: satisfied with being able to breathe freely, and feeling assured of life, our little girl was unwilling to submit to new investigations: perhaps she acted right, under the guidance of her instinct. Indeed at this present moment, she not only enjoys perfect health, and swallows all sorts of food, without any difficulty, but, when she takes out the canula and closes the opening with her finger, her voice is found to have acquired considerable power, and the laryngeal opening is enlarged. It is very possible that the continued suppuration acted as an excretory and diminished the engorgement; besides, should we not wait for the influence of puberty? We know its effects on the organs of speech: may it not give the larynx its usual capacity? All these considerations induced me to wait patiently, without incurring new risk to my interesting little patient.

"This case clearly proves that tracheotomy may be performed, not merely to admit the air temporarily, or to extract a foreign body, but even to obtain a new mode of permanent respiration, which has not hitherto been done; at least I have not found any thing of the kind recorded.¹

"The operation was difficult, because of the tender years of the patient, and the anatomical arrangement of the parts; but in adults this would be greatly obviated, especially in men, by the prominence of the larynx, and I think the operation promises much in

¹ This passage only proves that M. Senn had not read what had been done.

cases of laryngeal phthisis, of tumours, whether within or without the larynx, on the tongue or in the pharynx, for it is known that patients often die asphyxied. It was so with the man mentioned in the first note, the operation would have afforded an opportunity of exploring the larynx, of recognising the tumour, and even of removing it."

On the 1st of August, fifteen months after the operation, Mr. Senn wrote to the editor of the *Journal*, as follows, begging him to publish the whole case, that the final result of the treatment might be seen :

"When I sent the essay to the Institute, six months after the operation, the child was enjoying good health; during the winter of 1828, she was attacked with whooping cough, but bore the disease well, though it proved fatal to one of her young friends. I do not know whether the larynx was dilated during the fits of cough, or whether the suppuration of the wound, which lasted three months, operated as a cautery does near an engorgement, or whether the improvement and complete change that occurred, was followed by active absorption in the diseased tissues. Perhaps all these causes acted together; however, in the spring of 1828, eleven months after the operation, when I removed the canula and closed the wound, I was agreeably surprised to find that the larynx was quite free, and even violent exercise was not followed by any difficulty of inspiration. Therefore I did not replace the instrument and in fifteen or twenty days the fistula was closed: from this time the child enjoyed good health, her voice became perfectly natural and the tone was unaltered. May we not justly hope to see patients with laryngeal phthisis relieved from impending dissolution, and after the operation carefully examine the organ, employ detergents, washes, &c., and, above all, secure absolute rest? I suggest these reflections to attentive practitioners who are desirous of advancing science. I expect to perform the operation, in a few days, on a man of thirty, who has had acute laryngitis which became chronic, and is now constantly threatened with suffocation from contraction of the laryngeal cavity. The violet hue, without any cardiac or pulmonary disease, the sensibility and volume of the larynx, and the hissing, leave no doubt respecting the seat of the disease. The patient wished first to try the effect of setons to the sides of the larynx, and will probably object to the operation until reduced to the last stage of marasmus."

The *Archives Générales de Médecine*, for 1836, (2d series, vol. 12, page 103 et seq.) contain two very interesting observations of syphilitic ulcerations which had brought the patients to the verge of suffocation and asphyxia. Dr. Thomas Henry Purdon practised tracheotomy in both; he adapted a canula, and the cure was complete. They are too interesting to pass unnoticed.

OBSERVATION LX.

Syphilitic ulcerations of the larynx.—Tracheotomy.—Cure.

Mary M'Alister came to the dispensary on the 3d of April, 1831, complaining of dyspnœa, and a hoarse, croupy cough. Pressure on the thyroid cartilage was painful; respiration was particularly difficult during the inspiration; the patient only spoke in a low tone; she was considerably emaciated. This state lasted six weeks, the symptoms gradually growing worse. She had syphilis several months previously, for which mercury had been pushed to pyalism; no secondary symptoms had occurred. *Prescription*: a blister in front of the throat; hydrargyrum cum cretâ five grains, calomel a grain, opium a third of a grain, every six hours.

On the 4th, respiration was much more difficult; the imminence of suffocation rendered the operation indispensable; it was easily performed. Scarcely an ounce of blood was lost, as no vessel was opened. The trachea was divided longitudinally; a tenaculum fixed it, which enabled us to remove a small portion on each side of the incision. Then a canula was placed in the opening, and the mercury was continued every three hours.

6th. The mouth was affected; sarsaparilla was substituted for the mercury.

The patient improved after the operation, without any unhappy accident; she was troubled for three weeks by the expectoration of thickened mucus, like that produced in the nose. At this time she had frequent desire to cough, probably determined by the cicatrization, and the contraction of the ulceration of the glottis, in which region she had a sawing sensation. At the time of the operation, she was in the seventh month of pregnancy, and had a happy accouchement at the full term. Shortly after birth, the child had some syphilitic marks, such as a scaly eruption, and cracks in the soles of its feet. These symptoms disappeared under the use of hydrargyrum cum cretâ. She had another child in 1833. Two years afterwards she was perfectly well, breathing through the tube in the trachea; her voice is completely lost, she can scarcely articulate a word.

OBSERVATION LXI.

Chronic laryngitis.—Imminent asphyxia.—Tracheotomy.—Recovery.

Margaret Coyle entered the Belfort Hospital towards the end of September, 1835, with symptoms of laryngitis, such as low voice, cough, pain caused by swallowing, and by pressure on the thyroid cartilage; respiration hoarse. She said she had previously suffered with a similar attack, and had been relieved by salivation. A blister was ordered to the front of the neck, and blue mass night and morning. The last produced pyalism in a week, without any

apparent improvement in the symptoms. Nothing unnatural was observed in the back of the mouth.

She was as well as usual at noon on the 1st of October, but at night the respiration suddenly became croupy. On the 2d, the face was anxious; respiration extremely difficult; the lips purple; pulse frequent and weak. Having no hope of relieving these symptoms by medicine, the operation was proposed as a last resort; the patient submitted. In this case, it was not so easily done as in the preceding, because the neck was very short, and the trachea was so very moveable, that I was obliged to fix it with a tenaculum before attempting to open it. Then an oval portion was easily removed, with a single cut of the bistoury. One little vessel only was divided, but ceased bleeding as soon as pinched. Before the trachea was opened, its motions caused air to enter the wound at every inspiration, which gave rise to a little emphysema of the cellular tissue. This was chiefly owing to the smallness of the space between the thyroid cartilage and sternum. At the moment the trachea was pierced, the lips regained their rosy hue, and the suffering was immediately relieved. From this moment, until the 20th of October, she recovered without any unfavourable symptoms, but she wore a canula, and had no voice. The mucous expectoration was less troublesome in this patient. In neither was there any tendency to inflammation of the trachea.

In both cases, the tube introduced immediately after the operation was larger than that afterwards worn; it was oval, the great diameter being rather more than one third of an inch, and the smaller about a quarter; the length was about an inch and a half. The permanent tube was small; it was long enough to penetrate a quarter of an inch into the trachea, varying according to the thickness of the parts covering this organ. It was circular and double. The inner tube, which required to be occasionally cleaned, was a quarter of an inch in diameter, the smallest size consistent with free and easy respiration. The exterior tube had no projection at the end within the trachea; this, in fact, only makes it more difficult to introduce, and does not prevent its expulsion. Indeed, three patients, on whom I have used this modification, preferred the tube without any projection. Curved tubes, according to my experience, were more readily expelled, and more difficult to clean. The larger tube used at first, has the advantage of being less obstructed by the mucus, which is then abundant. It may be cleaned without disturbing the patient. The canulas are retained in place by a riband passed through holes in the plate of silver at their outer extremity, and tied at the back of the neck.

To these important cases we might add that of Mrs. Petit, whom we tracheotomised in the last stage of asphyxia, caused by cancerous laryngeal phthisis. (See Obs. No. XVIII.)

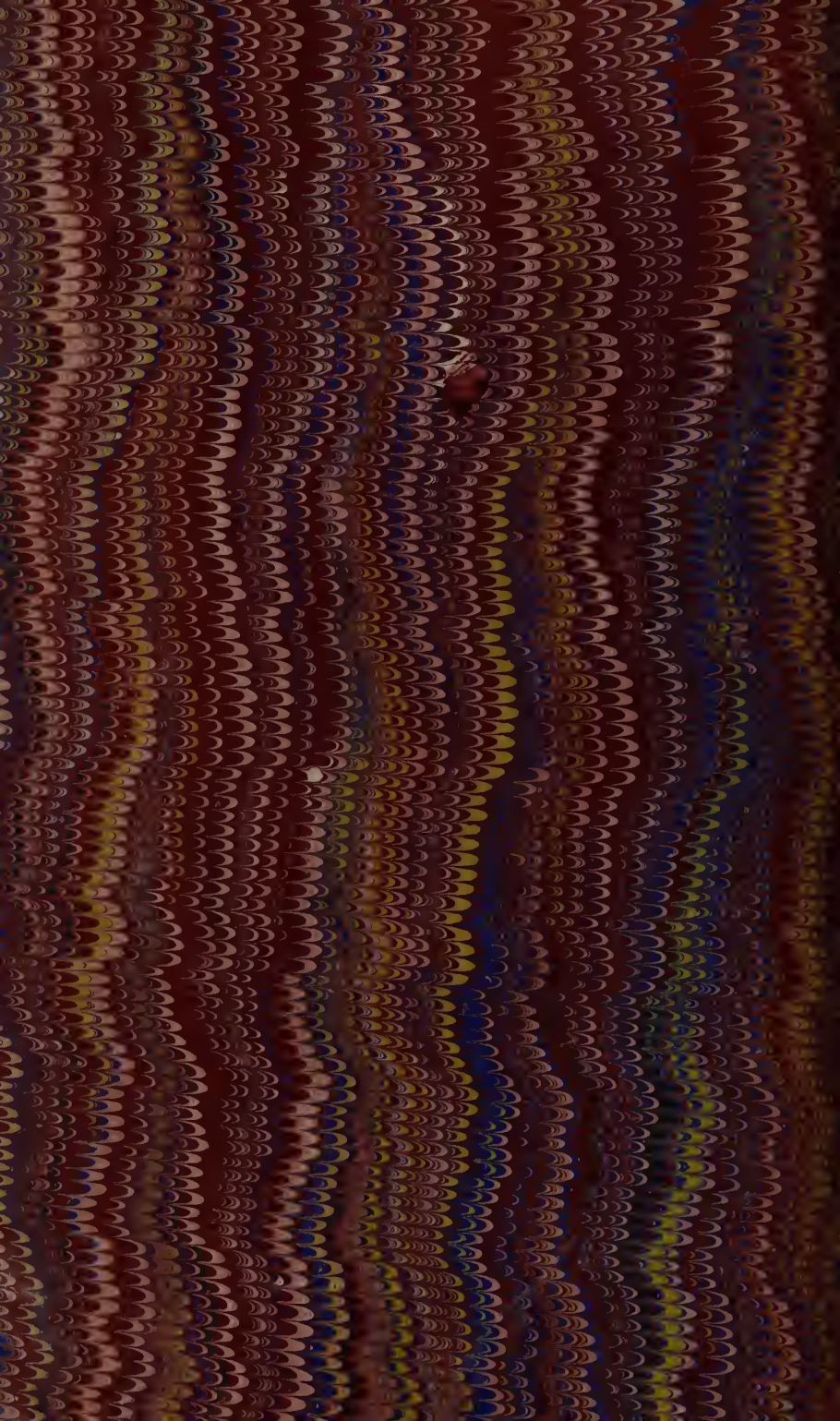
After all, the operation is but a palliative, or temporary relief, if there exist any incurable disorder in the larynx or lungs: it may prolong life, as was the case with Mrs. Cotillard, (Obs. No. LVI.)

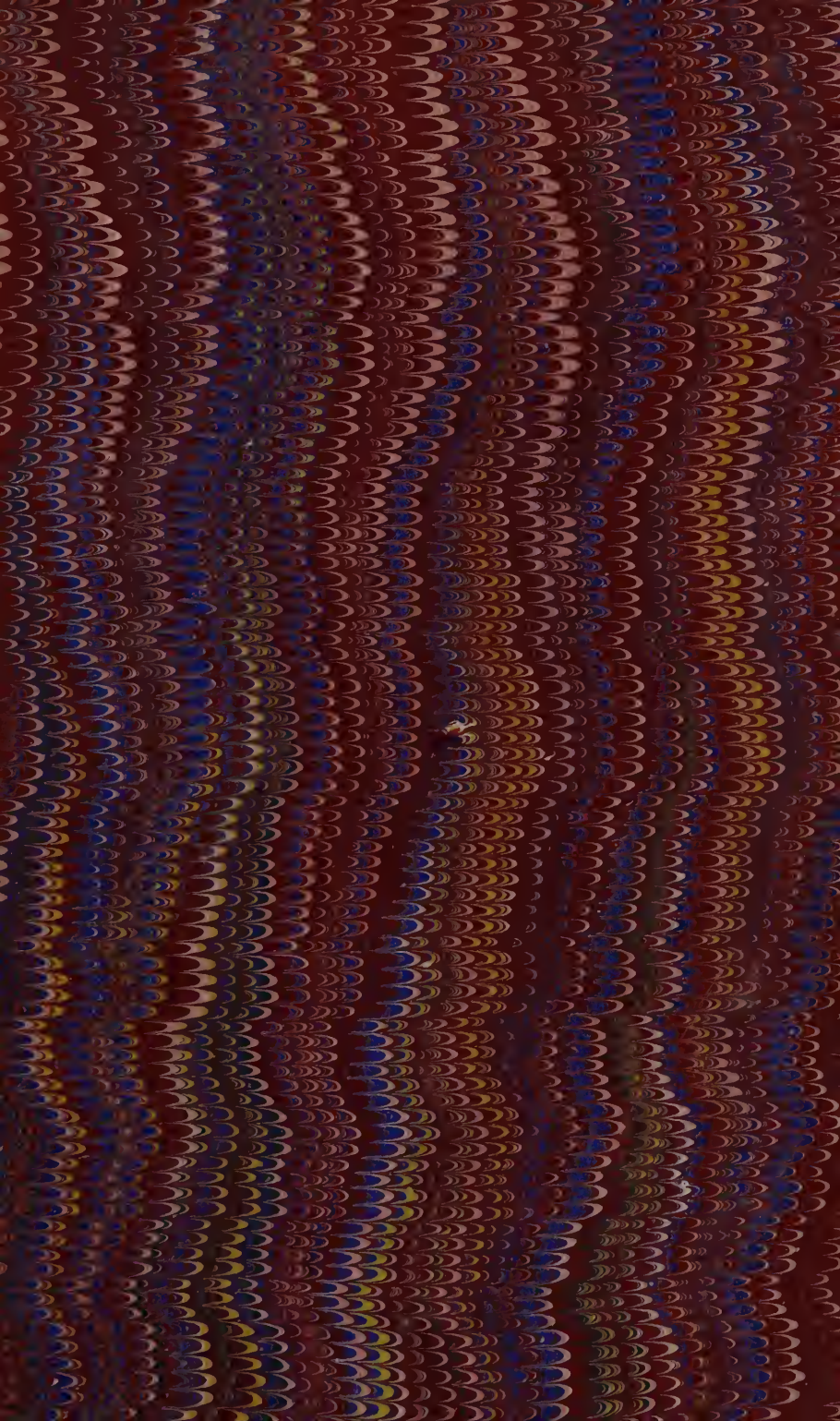
Mrs. Petit, (Obs. No. XVIII,) and with Mr. Fourney's patient, (Obs. No. XXII;) but when there is only ulceration or swelling in the larynx, and when the cartilages are not necrosed, there is every reason to hope for recovery, which is most happily demonstrated in the results obtained in Observations No. LI, LII, LIII, LIV, and LV.

The treatment, after the operation, is the same that would have been employed, had not suffocation required this more urgent duty. When the cure of the laryngeal lesion is slow, we should profit by the opening into the trachea, and introduce topical medications, which will be the better borne, because the larynx has ceased to convey air, and to contract convulsively on the least stimulus: thus, with a metallic probe and a piece of sponge, we have touched even the glottis with thick liquids, such as gum water, having calomel suspended in it; mercurial ointments, or any medicines which we may expect will exert a happy influence in modifying the state of the mucous membrane.

If small necroses exist, the consecutive swelling of the sub-mucous cellular membrane will not disappear until the removal of the sequestrum. We have observed such a separation in the case of Dr. Evrat, (Obs. No. LVII;) and in the case reported by Dr. Goodeve, (Obs. No. LV,) the patient threw up, with coughing, a considerable portion of cartilage.

But, if the sequestrum be of such a character that its elimination is impracticable, purulent fistulæ are established either into the pharynx or trachea, or even externally; and the small number of sympathetic disorders, sometimes excited by the laryngeal affection, allows the patients to live with a canula; who may esteem themselves fortunate, if the constant contact of a foreign body with the tracheal mucous membrane does not excite unpleasant reaction in the lungs, and, finally, tubercularisation.





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